ADM.
RARY

JUL 24 1946

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

INCLUDED IN THIS ISSUE

Squandering the Public Domain in Sweden: 1820-1870
Rudolf Freund

Financing Urban Redevelopment
M. C. Lubar

The Subsidy and Housing
Charles Abrams

Allocating Demand Costs
J. A. Nordin

Some Considerations on the Land Market in Europe
Giuseppe Medici

Also

BOOK REVIEWS AND OTHER TIMELY ARTICLES

VOLUME XXII, NUMBER 2 MAY, 1946 PRICE $1.50 A COPY

SOCIAL RESEARCH

An international quarterly, founded in 1934, published by the

GRADUATE FACULTY OF POLITICAL AND SOCIAL SCIENCE
of the New School for Social Research, New York

Contents for June 1946 (Volume 13, Number 2)

The Economic Problem of Germany — *Ernest Hamburger* and *Alvin Johnson*
Big Three Solidarity — *Thomas K. Finletter*
The Threat of an Anglo-American Hegemony — *Crane Brinton*
Democracy—Challenge to Theory — *Arnold Brecht*
Keynes as an Economist — *Hans Neisser*
Julius Ebbinghaus, On the Occasion of the Reopening of the University of Marburg — translated by *Horace M. Kallen*

BOOK REVIEWS

Published in February, May, September and November

Subscription $3 a year (Foreign $3.50)—Single copies 75 cents

66 WEST 12TH STREET, NEW YORK 11, N. Y.

ECONOMICA

ECONOMICA is issued quarterly by the London School of Economics & Political Science in February, May, August and November. It publishes the results of original researches into all the aspects of Economics, Economic History and Statistics, and receives contributions from leading British, American and Continental economists. After twenty-three years of constant growth and expansion the Journal has made itself practically indispensable to progressive teachers and students of economics and is increasingly read and appreciated by those engaged in public undertakings throughout the world.

ANNUAL SUBSCRIPTION: 15s

Single copies, 5/. post free

Subscriptions and enquiries should be addressed to the Publications Dept., London School of Economics, Temporary Wartime Address: The Hostel, Peterhouse, Cambridge, England.

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

CONTENTS MAY, 1946

In Memoriam to Leonard A. Salter, Jr. ..... EDWIN B. FRED 117
Squandering the Public Domain in Sweden: 1820-1870. RUDOLF FREUND 119
The Subsidy and Housing ..... CHARLES ABRAMS 131
Institutional Obstacles to Land Improvement ..... JOHN F. TIMMONS 140
Financing Urban Redevelopment ..... M. C. LUBAR 151
Allocating Demand Costs ..... J. A. NORDIN 163

Reports and Comments

Some Considerations on the Land Market in Europe ..... GUISEPPE MEDICI 171
Non-Agricultural Factors in Land Prices ..... GEORGE H. WALTER 173
Acreage Allotments and Land Prices ..... JOHN E. MASON 176
What Has Happened to Durham and Delhi? ..... ADON POLI 182
Public Utility Financing in the First Quarter of 1946 .... ROBERT G. DUDLEY *and* HAROLD L. MILLER 190

Book Reviews

Earthbound China (Fei and Chang) ..... *Everett C. Hughes* 193
If the Prospect Pleases (Haystead) ..... *R. R. Renne* 194
Government and the Mortgage Debtor (Skilton) ..... *L. A. Salter, Jr.* 195
Demobilization of Wartime Economic Controls (Clark) .. *D. D. Lescohier* 195
Pleasant Valley (Bromfield) ..... *Rainer Schickele* 196
The Farmer's Last Frontier (Shannon) ..... *W. H. Glover* 197

PUBLISHED QUARTERLY BY THE UNIVERSITY OF WISCONSIN

DURING THE MONTHS OF FEBRUARY, MAY, AUGUST, AND NOVEMBER

Publication office: 121 South Pinckney Street, Madison Wisconsin
Editorial Office: Sterling Hall, University of Wisconsin, Madison 6, Wisconsin
The contents of the *Journal* are indexed in the *Industrial Arts Index.*

Entered as second-class matter, January 3, 1938, at the post-office at Madison, Wis., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized October 12, 1922. Printed in the United States of America.

Subscription Rates: $5 a year; $1.50 a copy. Remittances may be made by personal checks, drafts, post-office or express money orders payable to the Journal of Land & Public Utility Economics.

Agents of the *Journal* in Great Britain, B. F. Stevens & Brown, Ltd., 28-30 Little Russell St., British Museum, London, W. C. 1.

Copyright: Contents of this issue are covered by copyright, 1946, by the University of Wisconsin. Copyright, 1946, in Great Britain.

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

Published by The University of Wisconsin

EDITORIAL BOARD

Land Economics

RAYMOND J. PENN
University of Wisconsin

V. WEBSTER JOHNSON
U. S. Bureau of Agricultural Economics

Public Utilities

MARTIN G. GLAESER
University of Wisconsin

H. J. O'LEARY
Wisconsin Public Service Commission

E. W. MOREHOUSE
General Public Utilities Corp., New York

Managing Editor

MARY E. AMEND

Urban Land

RICHARD U. RATCLIFF
University of Wisconsin

HELEN C. MONCHOW
National Housing Agency
Washington, D. C.

Regional Planning

JOHN M. GAUS
University of Wisconsin

HOMER HOYT
New York Regional Plan Association

FINANCE COMMITTEE

ASHER HOBSON
and
DON D. LESCOHIER
University of Wisconsin

All Members of the
Editorial Board
On the Campus of the
University of Wisconsin

EDITORIAL COUNCIL

GRAHAM ALDIS
Aldis & Company, Chicago; former President, Building Owners and Managers Association of Chicago.

CHARLES S. ASCHER
Regional Housing Expediter, New York City, National Housing Agency.

MORTON BODFISH
U. S. Savings & Loan League, Chicago, Illinois

JAMES C. BONBRIGHT
Professor of Finance, Columbia University.

J. COKE
Senior Economist, Economics Division, Dominion Dept. of Agriculture, Ottawa, Canada.

F. W. DOOLITTLE
Public Utility Consultant, New York City.

JOSEPH LARONGE
President, Joseph Laronge, Inc., Cleveland, Ohio.

D. F. PEGRUM
Department of Economics, University of California, Los Angeles.

PAUL P. PULLEN
New Business Officer, Chicago Title & Trust Company.

PAUL JEROME RAVER
Administrator, Bonneville Power Administration, Portland, Oregon.

EMERSON P. SCHMIDT
Committee on Economic Policy, Chamber of Commerce of the U. S., Washington, D. C.

HENRY SCHMITZ
Professor and Chief, Division of Forestry, University of Minnesota.

HERMAN O. WALTHER
President, American Institute of Real Estate Appraisers.

HENRY C. TAYLOR
Director, Farm Foundation, Chicago, Illinois.

WALTER H. VOSKUIL
Chief Mineral Economist, Illinois State Geological Survey, Urbana, Illinois.

GORDON WHITNALL
Consultant in Planning and Government; Instructor in Planning, University of Southern California.

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

MAY
1946

VOLUME XXII
NUMBER 2

In Memoriam to Leonard A. Salter, Jr.

By EDWIN B. FRED, PRESIDENT, UNIVERSITY OF WISCONSIN

(*On the occasion of a Memorial Service at Madison, Wisconsin, June 26, 1946.*)

We have met to pay final tribute of affection and esteem to Leonard Austin Salter, Jr., who was near and dear to those who knew him.

In a single decade Leonard Salter made a record of scholarly achievement equalled by few in a full life-time of service. It is worthwhile to note that in his brief period of service Salter published more than thirty research articles, critical essays and reviews. During the last year he completed a doctoral thesis in which he made a review of research in land economics which was of such excellence that it is soon to be published in book form. In it he summarized twelve years of inquiry into methods of study of problems in land economics.

His scholarly contributions were of such distinction that he was frequently called upon to serve in advisory and administrative relationships. He was a member of the North Central Regional Committee on Land Tenure, advisor to the National Bureau of Economic Research, American delegate to the International Conference on Land Tenure, and Secretary of the Committee on Agricultural Policy of the Association of Land Grant Colleges and Universities. As a member of the board of editors of the *Journal of Land & Public Utility Economics* Salter availed himself of the opportunity to encourage new and critical interest in the shaping of land economics policies.

Salter's brief life was a busy one—much occupied and purposeful. Born September 29, 1911, he attended the public schools of his home city and won the degree of Bachelor of Science from the Massachusetts State College in 1932. Two years later he was married to Gertrude Barber Church, a college classmate who continued to the end his most cherished companion and closest advisor.

Before coming to the University of Wisconsin in 1940 he studied at the Connecticut State College from which he was granted a degree of Master of Arts. While engaged in government service, he was placed in charge of field research for the northeastern section of the United States in the Division of Land Economics. Being recognized as one of the young leaders in agricultural economics, he was invited to Wisconsin to pursue further his studies and services in his chosen fields of effort.

While keenly alive to economic issues, Salter's interests were not confined by narrow limits but instead extended to all problems of man's society. Thus it was only natural that, when the opportunity arose for the University to undertake comprehensive studies of Wisconsin's culture and economy, he was a key member of the committee chosen to formulate and direct the program. This broad work, as it unfolds, will serve in a real sense as a memorial to his vision and understanding.

Salter was a vigorous and inspiring teacher, devoting his spirit and energies tirelessly to communicating to others a living understanding of the social processes and ideas which he valued. His personal integrity, his boundless energy, his insistence upon practical social ends attracted to him students from many races and from various continents. To his students he was a crusader in research in the social sciences. Students felt that his teaching was a continuous process in their lives, that it did not terminate at the classroom, that they could always turn to him as an understanding source of inspiration and courage whenever they needed guidance or assurance.

Salter loved and was loved by many people. His true feelings were expressed through an amazing and varied range of human contacts. The Salter home was always a meeting place of liberal minds and the generosity and intellectual vitality of the hosts made here a perfect background for the interchange of ideas on problems of man's welfare. To it came hundreds of native and foreign friends, students, professors, writers, and public figures—a Chinese rural sociologist, a Russian dairy specialist, a colleague from California, a statesman from Washington. These varied associations enabled him to keep abreast of thought and action in many quarters of the world. From them he assimilated new knowledge and viewpoints, and for them he was a veritable sounding board, returning a ventured statement expanded, reshaped and enriched in terms of his own viewpoint.

The dominant theme throughout Salter's life was a broad and real interest in people, a zealous desire to shape a world in which all men could live to the fullest of their abilities. He expressed this desire not merely by words, but by living deed and example. He used his talents as a gift to be shared with others, and his intellectual achievements were to him a tool by which fundamental human goals might be accomplished.

Rare qualities of mind and spirit were joined in this young man, and he shall live in the lives of his students and colleagues. There was no winter in his days and no autumn in his life, but instead youth and vigor.

The death of Leonard A. Salter Jr. in a hotel fire in Chicago on June 5, 1946 was a profound loss to this *Journal*. Professor Salter served on its Editorial Board since 1942 and, since the death of Professor George S. Wehrwein in January 1945, had been its most active and enthusiastic member and counselor.

In retrospect, it seems prophetic that, less than five weeks before his death, Mr. Salter had submitted the name of his associate, Professor Raymond J. Penn, as a member of the Board of Editors of this *Journal* to represent the field of land economics. He commended him for his scholarship and professional integrity. Mr Penn will not in any sense "take Mr. Salter's place." He will create his own place and will strengthen the effectiveness of the work of the Editorial Board and thus offset the void created by the death of Leonard A. Salter, Jr. (Ed.)

Squandering the Public Domain in Sweden: 1820-1870

By RUDOLF FREUND*

IN 1542, King Gustavus Vasa, the founder of modern Sweden, declared that "lands which are not under cultivation belong to God, Us and the Swedish Crown, and to nobody else."[1] By virtue of this pronouncement, the Swedish government laid claim to vast stretches of unappropriated land, especially in the northern provinces of the realm. In the more densely settled parts of southern and central Sweden, waste and woodlands had long been in the possession of manorial estates, open-field villages and the ancient hundreds. From the very beginning, the public domain of Sweden thus comprised lands of little agricultural value. Northern Sweden is a mountainous country with short growing seasons and severe winters. Contiguous stretches of level and fertile soil are found along the Baltic Coast and the lower river courses only. The interior ascends slowly to the high plateaus of the Scandinavian Rockies, is serrated by swift mountain rivers, and interspersed with lakes, bogs, and moraines. The tundra vegetation of the higher latitudes and altitudes afford only a scant living for Lapps and their reindeer. Nevertheless, Northern Sweden is by no means a stepchild of nature. Mineral deposits are found in both its southern and northern corners; the swift streams provide power; and, above all, coniferous forests cover the lower mountain slopes and stretch down to the Baltic Sea and the central lakes in a succession of seemingly endless waves.

The map shows, on the right hand side of the page, that forests cover between 65% and 75% of the coastal and southern regions of Northern Sweden, and claim up to 85% of the central interior. The western and northern parts (half of which lie above the limit of forest growth) average lower shares, but still contain about 1/3 of all the forest land in Sweden, against over two-fifths in the remainder of Northern Sweden. The map on the left hand side shows the administrative division of Sweden into Län. Northern Sweden, in the broader sense of the word, includes the Län north of the central lakes, while the narrower term "Norrland" applies only to the Län north of the two Dal-rivers.

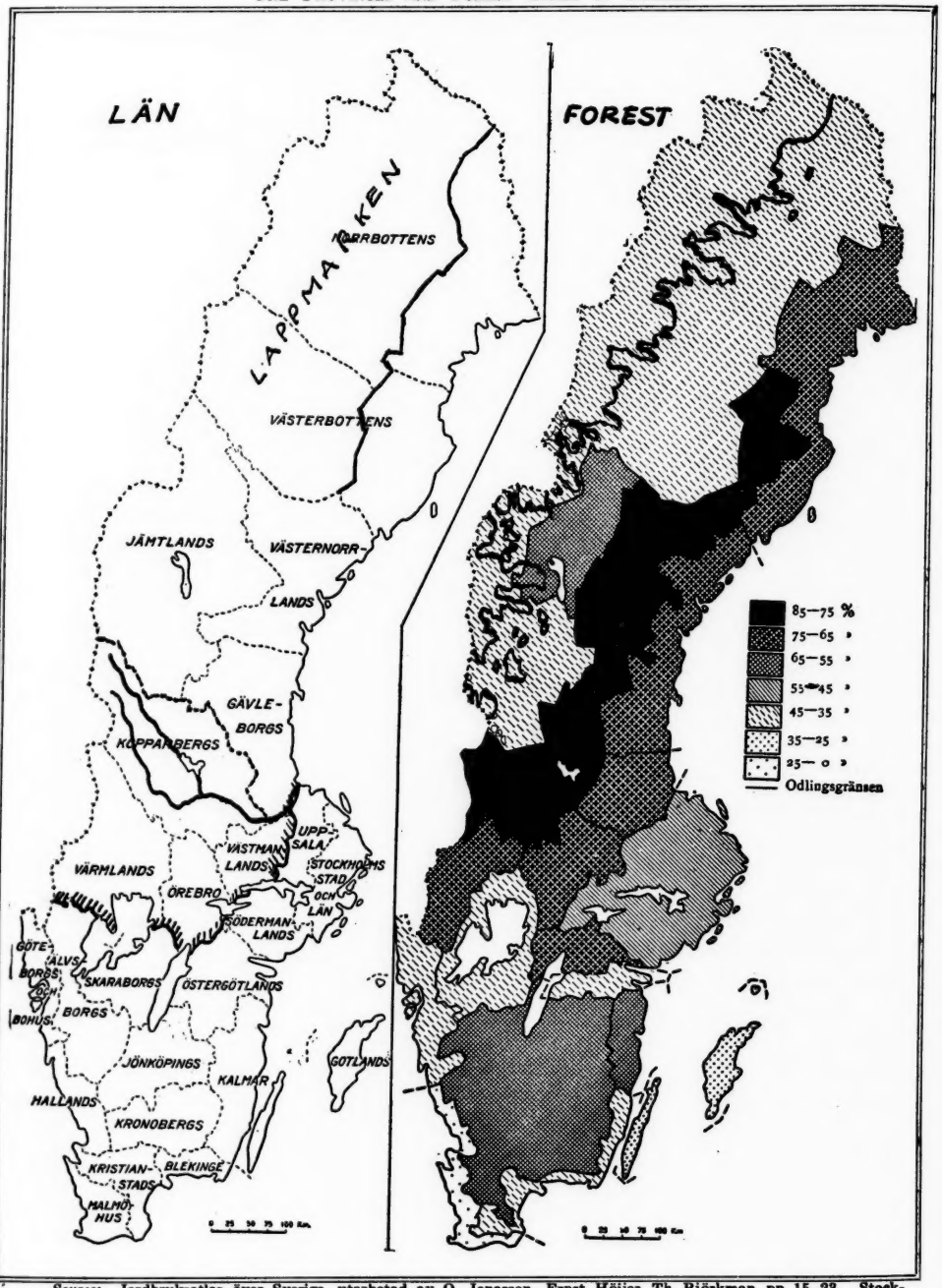
Early Land Policies

Factors of human geography explain why King Gustav's pronouncement, quoted above, was not followed by active steps towards the administration of the new Crown lands in the north. Settlements in the interior were far apart, means of transportation were lacking, and the large forests had little, if any, economic value except for the peasants who cut timber, gathered fuel, cleared patches by burning, and grazed their cattle in the woods adjoining their farms. Willy-nilly, the King refrained from exercising the Crown's property rights beyond enjoining the peasants and villagers not to exploit and damage the forests, or to expand their commons beyond the limits of their real needs. However, the Vasa-king and his successors insisted on two points of legal importance; first, that the peasants pos-

* University of Virginia.

[1] Öppet bref till menige man i Gästrikland, Hälsingland, Medelpad och Ångermanland den 20 April 1542. Gustav I. registratur. Del. XIV. p. 40.

THE PROVINCES AND FOREST LANDS OF SWEDEN



Source: Jordbruksatlas över Sverige, utarbetad av O. Jonasson, Ernst Höijer, Th. Björkman, pp. 15, 23. Stockholm: 1937.

sessed lands not under cultivation only by the sufferance of the Crown; and secondly, that unappropriated land should remain wide open to prospective settlers. Internal colonization was indeed near to the heart of the Vasa dynasty, mainly because the wished-for expansion of settlement would benefit the Royal Exchequer by the assessment of the new farms for taxes.

It was only after the middle of the seventeenth century that the Swedish Crown became more actively interested in its lands, and especially the forests on them. The mining and processing of iron and copper ores in the southernmost parts of Northern Sweden gained momentum and depended for its ascendancy on cheap and plentiful supplies of fuel and timber. Under the influence of mercantilistic ideas, and roughly between 1670 and 1750, the Crown assigned large forest tracts to these key industries. The grants, for which only small fees or none at all had to be paid, conveyed cutting rights and entitled the grantees to all charcoal rendered within a certain distance from the mills.

At first, no definite boundaries marked off the areas so used from the commons of the neighboring villages and bitter quarrels ensued, especially with respect to the old and harmful peasant practice of clearing forest land by burning it over. From 1638 on, Crown lands in the vicinity of the mines and mills were therefore set in bounds and were divided between the villages and the industrial grantees—the lion's share usually going to the latter. Compared to the yet untouched reserves of forest lands farther north, the areas involved were not large. But they were located on the fringe or even within the old-settled provinces of Central Sweden, which contained the best timber stands of the realm and some good farming land as well. It is not surprising, therefore, to hear contemporaries complain that these earliest examples of delimitation wrought grave hardship on the peasantry and hampered severely the further expansion of settlement. As a matter of fact, the government ceased to encourage new settlers from moving north during this period.

Delimitation and Partition of Crown Land

A. *Principles and Method.*[2] During the second half of the eighteenth century, the land policy of Sweden entered into its decisive phase. Mercantilistic ideas were slowly replaced by the physiocratic belief in the prime productivity of the soil. At the same time, a growing population and increasing grain imports demanded the stimulation of domestic food production. Both viewpoints led to a policy which set out to promote more efficient farming methods and better living conditions in the countryside by giving the tiller of the soil unfettered control over the soil he worked. This was to be accomplished by breaking the ties of an outmoded village economy and by offering land to settlers on terms of fee-simple ownership. In either case, joint as well as public ownership in land stood in the way of the desired individualization and better utilization of all land fit for farming. From about 1750 on the Swedish government was resolved to remove these obstacles, but had to pro-

[2] The motives, methods and effects of the numerous government measures pertaining to the delimination and partition of Crown lands in the north are the subject of a detailed study by Jan Eric Almquist, "Det norrländska Avvittringsverket," published in the three-volume work *Svenska Lantmäteriet 1628-1928*, Del. I. pp. 365-494. These volumes contain authoritative essays on the history of surveying in Sweden, and were published in commemoration of the 300th birthday of the Swedish Office of Surveys. They are exceedingly valuable for gauging the historical developments of Sweden's land tenure system and land policy.

ceed with caution and to adapt its policies to regional land tenure conditions.

In the long-settled and fertile parts of southern and central Sweden, joint holdings in land and arrangements for its common use were most numerous and were participated in by free- and copyholders, manors, villages, hundreds, and the Crown itself. Whenever and wherever these partnerships were dissolved, the consensus of its members was deemed indispensable. The role of the government in promoting separation was confined, therefore, to coaxing and prodding, to the pronouncement of general principles and procedures, to the insistence on proper surveying through licensed officials, and to the settling of disputes. These purposes were first served by the so-called Great Partition decrees of 1749-1762, at first of limited scope but soon followed by more sweeping ones. In 1827, the so-called Legal Partition was promulgated, which effected the final re-distribution and consolidation of all types of land holdings into severally-owned and individually-managed farms and estates.

Conditions in the Northern provinces were different on several counts. Vast stretches in the interior were completely uninhabited, but settlements along the coast and the lower river basins, around some of the larger lakes and in the southern section were fairly numerous, and some had even grown into large villages. Readily accessible farm land had been taken up everywhere, and a growing population began to press against the limited supply of arable land. However, in one important respect the northern farmer was better off than his southern colleague; he could and did use the uncultivated land around the settlements unhindered and without stint. Farms had come to depend on the forests not only for their fuel, timber, fences and working material, but also for the feeding of their livestock. Scattered mountain meadows of often luxurious grass growth were extensively used for grazing and hay-cutting; in places, the entire livestock were moved from one mountain headquarter to another during the warmer seasons of the year and returned to the permanent abode for the winter. These practices, and others, had given rise to joint enterprises among the northern farmers which resembled in many ways the village commons farther south, and were held in the same high esteem.

In whatever way the northern farmers used the uncultivated lands, they did so by virtue of old customs and practices, and only by sufferance of the Crown. If and when the state decided, therefore, that the interests of agriculture in the north were best served by granting the farmers control over the land they worked and used, the running of a demarcation line around these lands was all that was required. Generally speaking, unilateral separation of land from the public domain was indeed the sole purpose of delimitation ("avvittring"), but its practical application involved more far-reaching decisions. There was, for one thing, the primary question of whether or not Crown land should be assigned directly to farmers for their individual and several enjoyment, thereby dissolving in effect the old arrangements for common forest and pasturage utilization. The answer was in the negative, largely because the thorough-going individualization of farm land necessitated the repartition of the arable as well, and infringed upon vested rights in the mountain meadows and other joint enterprises.

But neither was the individual farmer left out of the picture completely. His

claims and needs for uncultivated land were indeed taken into account (see below), but they were lumped together, and only the outer bounds of the total area, thus determined, were run by the government. The further subdivision of the tract was left to the farmers themselves. If and when decided upon, the marking of internal lines and the ultimate consolidation of holdings and interests had to be carried out according to the methods of partition ("skifte") mentioned above. The delimitation of Crown lands by unilateral action of the state was thus the indispensable prerequisite for the eventual transfer of uncultivated land to the private ownership of each farmer, but it was not its direct cause. In practice, delimitation was often followed immediately by partition but, quite as frequently, long years elapsed before partition was agreed upon, partly because the peasants wanted to continue their old arrangements, and partly because they had to bear the costs of partition themselves. It may be added here that delimitation and partition were synonymous in the cases of isolated farms and, of course, in those of new settlements as well.

The second, and hardly less important isssue involved in delimitation concerned the amount of land the government was willing to separate from the public domain and turn over to the peasantry. In this respect, already existing arrangements could be built upon, at least in part. The farmers of the north, as elsewhere, paid their taxes on the basis of a cadastre, and according to a common yardstick called "mantal," which measured the relative income and tax-producing capacity of their farms through assigned digits and fractions (e.g., 1/1 mantal, ½ mantal, etc.). For our further discussion it may be borne in mind that throughout the eighteenth and nineteenth centuries, the ¼ mantal was considered to be the lower limit of a fully independent farm in most parts of the North. After the government had decided, on the basis of more general deliberations, how much land should be granted per full mantal, the total size of an area to be marked off from the public domain was determined by adding up the mantal digits and fractions in a given community and by multiplying this sum by the stipulated full mantal allotment. The items of the sum indicated the future size of the individual farm properties — after partition was carried out. Legally speaking, this modus operandi proceeded from the assumption that the tax assessments embodied proportionate claims of the farmers in the common fund of uncultivated land which they had used of old and which was now being alienated from the public domain. By the same token, farmers did not have to pay for the land thus transferred to them because they were believed to have acquired it by virtue of being assessed for taxes.

The same principle was applied to land granted to new settlers. Already existing laws prescribed that, after a period of free occupancy which ran up to 30 years in the more remote parts of the country, new farms had to be assessed for taxes on the mantal basis also. Into these stipulations, delimitation could be fitted easily by promising the settler as much land as would correspond to the mantal digit or fraction, which he was willing to accept eventually. The land was staked off for him after he had complied with certain provisions, such as clearing a couple of acres, erecting buildings, fencing in his arable, etc.,

and final title was conveyed after his term of free occupancy was over. Older laws required the payment of a fee at that time, but this was usually waived during the period under consideration.

B. *Measures.* The delimitation policy of the Swedish government passed through two distinct periods, the first one extending from about the middle to the end of the eighteenth century, the second and decisive one commencing during the 1820's and ending in the 1870's. The earliest decrees were issued in 1742 for Angermanland (southern part of Västerbotten's län), where village commons were still being marked off in favor of neighboring mines and iron works. The decree of 1742 intended to check these practices, but only 20 years later surveyors were ordered to respect more fully and rigorously the claims and needs of the farmers when running the boundaries between village areas and Crown lands. Shortly thereafter, in 1770, delimitation was introduced into Jämtland, dovetailing the earlier stipulations with new and forward-looking plans. In this province, agricultural progress languished owing to an antiquated and cumbersome tax and land tenure system; in the course of a much need reform, the severance of claims in Crown lands was meant to solve some of the state's fiscal and administrative problems and to prod farmers into taking more land under cultivation. Together with the fact that mining and other industrial interests were of little importance in Jämtland, these circumstances explain why the terms of delimitation were rather favorable to farmers. Crown lands were to be granted on the scale of 875 to 1750 acres of agriculturally usable land per full mantal, not including the unproductive stretches within the confines of the allotted area; a farmer assessed for 1/4 mantal would thus receive 220 to 440 acres of reasonably good land. More moderate measures applied to parts of Västerbotten's län, for which delimitation was decreed in 1780. The full mantal carried a claim of 720 to 1440 acres, depending on the quality of the land. Small farms were treated as 1/4 mantal units, and farmers were allowed to augment their claims by adding a mantal fraction to their old one, if they could show good reasons for wanting more land than their assessment warranted.

On the whole, these decrees were neither radical nor very effective. The Angermanland decree showed plainly that the government had the interests of the mines and iron works still close at heart, and only in Jämtland was the farmer and his needs placed squarely into the center of delimitation. In Västerbotten, a compromise between the two objectives seems to have been struck. More importantly, the political situation of the closing eighteenth and the beginning nineteenth centuries hampered the energetic pursuit of delimitation; and technicalities of various sorts, such as the lack of maps, appropriations, trained surveyors, and court injunctions, were allowed to retard further progress.[3]

Delimitation was revived, however, during the 1820's, when the Swedish government devised drastic measures intended to force the rural population of Sweden, and especially the peasants in their overcrowded villages, into the adoption of better farming methods. In the course of the next half century, common holdings in land were broken up everywhere, villages were torn apart and

[3] Almquist, "Avvittringsverket," *op. cit.*, pp. 393-396, 409-415, 425-429, 433-441.

farm lands consolidated, with the effect that an unprecedented expansion of tillage came about. In the North, similar results were to be achieved, of course, by granting Crown lands in generous amounts to farmers and to prospective settlers. This the more so, since the teachings of Adam Smith and his followers had convinced the high bureaucracy of Sweden that any kind of state ownership was detrimental to the best development of natural resources which should be turned over to private enterpreneurs as speedily as possible. The government was thus quite willing to sacrifice the public lands on the altar of economic progress without stint and even without circumspection.

Again, Jämtland was chosen to be the proving ground for the new policy, mainly because the unfinished business of the earlier delimitation, and its unsatisfactory results, continued to worry the authorities. Thus, the decree of December 8, 1820 paid particular attention to the legal and administrative side of the delimination measure. Special court procedures were established; six to ten surveyors received detailed instructions and were charged with the responsibility of accomplishing delimitation as quickly as possible, starting with the counties around the Great Lake ("Storsjön") in the middle of the province. In the matter of land allotment, the older stipulations were repeated; but the upper limit of the full mantal claim was set much higher, to wit, at 3,752 acres, and even at 5,625 acres when more remote mountain meadows had to be included. Bare and rocky mountain stretches, morasses and shrub lands did not count in the allotment, but were made part of the grant, if the running of the demarcation line was thereby facilitated. New settlers received land between delimitated areas, were given free occupancy for 15 to 30 years, and were promised low tax rates. Their grants were to correspond to at least the 1/4 mantal claim, and this limit also applied to the stipulation which gave smaller farmers a larger share in the grant than their tax assessment warranted. Finally, the decree of 1820 also included general directives concerning the subsequent partition of the delimited area; each farmer was to have all his landed property assembled in one piece including his cultivated lands. On the basis of these stipulations, delimitation of Crown lands progressed fairly quickly in Jämtland, and was in the main accomplished after 12 years.[4]

With the Jämtland decree serving as a starting point and model, delimitation was ordered for the three provinces of Väster-norrland, Västerbotten, and Norrbotten early in 1824—the only major change pertaining to the upper limit of land allotments per full mantal. This limit was set at 3,125 acres of meager but still productive land. Crown lands in Gäfleborg, the southernmost province of Norrland, were delimitated according to the decree of 1832 which repeated the stipulations of the earlier measures. Its results were not conspicuous, because most of the better Crown lands had already been marked off and turned over to the iron works and other industries, as was also the case in the neighboring counties of Kopparberg's län below the confluence of the two Dal-rivers. Farther up these rivers, the large villages of Dalecarlia and their intricate systems of land tenure and land utilization presented a special case for delimitation and re-partition as well, which can not be

[4] Almquist, *op. cit.*, pp. 448-461. Paul Hellström; *Norrlands jordbruk* (Uppsala: 1916), p. 100 f.: *Norrlandskommittéens Betänkande*, (Stockholm: 1904) Vol I., p. 86 f.

dealt with here. Only in the northern and western section of Kopparberg's län were conditions such as to allow the application of measures similar to those decreed for neighboring Jämtland. In all the parts and provinces of Norrland mentioned, the execution of the various delimitation decrees required more time than in Jämtland. In general, the separation of land from the public domain may be said to have been completed by the end of the 1860's.[5]

In the course of staking out Crown lands in Jämtland, serious complications arose concerning the grazing grounds of the Lapps in the northern and western corners of the province. Since not only the better lands, but also large stretches of heath were set in bounds, the Lapps were seriously hampered in their old accustomed pursuits. The first protective measures were taken in 1841. In countries frequented by the Lapps and their herds, no land could be granted to new settlers without special permission. On a much larger scale, the same troublesome issue came to the fore in Norrbotten's and Västerbotten's län, where the vast stretches of the interior and higher altitudes came up for delimitation during the forties. At first, the government clung to its avowed policy of promoting sedentary settlement, and assigned the Lapps only those grounds which were of no value to anybody else. Since this would not have prevented settlers from denting the grazing grounds of the Lapps, and from paring down their fuel and timber supplies, a more radical solution had to be found. In 1867, a proposal was adopted which intended to divide the two northern provinces approximately in half, reserving the interior parts to the Lapps. In consequence, almost two thirds of the territory of the two provinces were subject to special legislation in 1873. The vast area was subdivided, in turn, by the so-called line of cultivation which followed approximately the limit of coniferous forest growth and extended also into Jämtland. Above this line, no delimitation could take place, the whole area being reserved for the use of the Lapps and their herds. Below the line, Crown lands were indeed allowed to be staked out, but new settlements could be established by special permission only.[6]

C. *Performance.* In the course of delimitation the public lands of Sweden were squandered away almost completely. This was not due entirely to the terms of the decrees just discussed. If these had been followed to the letter, comparatively modest amounts of land would have been alienated from the public domain. But these terms were not strictly adhered to, partly because they did not fit the circumstances, but mainly because the carrying out of delimitation was left almost entirely in the hands of the surveyors. There is no doubt that these officials acted in good faith, with complete honesty and great skill. However, they were under the constant pressure of the farmers who were indeed not so much interested in the size of the grant, but decidedly so in its configuration; they wanted their mountain meadows, and all the tracts which could be used for cultivation incorporated into the delimited area. In this respect, they could point to the law which stressed the encouragement of tillage as the prime objective of its stipulations. On their

[5] Almquist, *op. cit.*, pp. 462-470, and the shorter accounts in the sources cited in the previous footnote. For the special conditions and measures in Dalecarlia, see especially: Werner Nordenstedt, "Skiftet och avvittringsväsendet i Dalarne," *Svenska Lantmäteriet* 1628-1928, *op. cit.*, Del. II., pp. 161-197.

[6] Almquist, *op. cit.*, pp. 475-482. See also map for boundaries of Lappmarken and the line of cultivation.

side, the surveyors were little inclined to deny the wishes of the farmers, whenever their acceptance facilitated the running of the demarcation line.

Moreover, the delimitation decrees were not overly clear concerning the principles which determined the size of the grants. True, the key-measure—that is, the amount of land to be granted per mantal — pertained to productive land only. But bogs, moraines and bare mountain stretches as well could be turned over to the farmers wherever they were surrounded by better land. More vexing was the wide range within which the mantal-allotment was supposed to vary when different qualities of land were concerned. In order to avoid trouble, the surveyors were inclined to grade the land downward, and even classify usable forest stretches as unproductive.

In these ways, farmers often gained control over exceedingly large tracts of forest and other lands. In Jämtland and Västerbotten, where gradation was generally resorted to, most farms were allotted two and three times more land than the law warranted. In various counties, good forest lands were delimitated at the rate of four and five times the stipulated maximum per mantal, with large stretches of supposedly unproductive land thrown in for good measure. Examples were far from rare which showed a ratio of 1 to 10 between productive and unproductive land, when delimitated, though later inquiries proved that all the land was of at least medium quality. In Västerbotten's län, practically every farm received grants of good land at rates which the law had reserved for land of definitely inferior quality only.[7] New settlers were favored in the same way. In Jämtland, for example, nine new farms held together 26,000 acres of productive land free of charge for 30 years; thereafter, these farms were assessed on the basis of 3-½ mantal only, and at very low tax rates.[8] In nearly all of these, as well as in many other cases, the large size of the grants was justified on the ground that the respective farmers depended on distant mountain meadows and pasturages for their livestock, and had acquired vested rights in these places by long use and even by tillage. Only by stretching the terms of the law to the utmost, and even beyond, were the surveyors able to incorporate these obviously productive lands in the grant, and yet to assure the farmers unhampered access to them. Of course, the farmers' greed for land, and especially for good timber stands, was a factor also. On the whole, however, this motive was of lesser weight, simply because the possession of forest land was of little, if any commercial value at the time when delimitation was carried out.

Unfortunately, no figures are available showing the precise amount of lands separated from the public domain after 1820. Around the middle of the century, an authoritative source stated that approximately 6.75 million acres had been delimitated, of which 6.25 millions were in the possession of farmers, and only 500,000 acres were under the direct administration of the state.[9] This latter figure reached its lowest point in 1870 when only about 250,000 acres of all land in Sweden were state owned, exclusive, of course, of the Lapp regions

[7] *Norrlandskommittéens Betänkande, op. cit.*, Vol. I., p. 87, and Vol. VI, p. 106 f.

[8] C. A. Agardh och C. E. Ljunberg, *Försök till en statsekonomisk beskrifning öfver Sverige* (Four parts, Stockholm: 1856-1863) Del. II., andra hälften, p. 378 f., and Del. IV., p. 120 f.

[9] Agardh och Ljungberg, *op. cit.*, Del. II., andra hälften, p. 379.

not yet delimitated.[10] A more complete picture of the final distribution of land according to ownership is given in Table I., referring to the year 1900. If the area above the cultivation line is disregarded, the table reveals that the state owned considerable tracts of land in Norrbotten and Västerbotten län only, by far the greatest part of which was located in the Lapp region below the cultivation line. In the more fertile coastal regions which had been delimitated according to the same procedures as the provinces farther to the south, the shares of state-owned land were low. A rough estimate would suggest, therefore, that delimitation turned over to private owners between 80% and 90% of all the productive land in the Northern provinces.

Ultimate Results

It is trite to assert that delimitation benefited the Northern farmer and settler: the real issue is whether the agricultural resources of the region were tapped more fully and used to greater advantage by granting to farmers and settlers large stretches of uncultivated land. The answer is not entirely in the affirmative. Available data, though not completely satisfactory from statistical viewpoints, indicate that the area under crops, the number of farms, and the agricultural population of the northern provinces increased sharply during the nineteenth century. Comparing these data to those pertaining to the whole country leaves no doubt, however, that the development of agriculture in the North, though more favorable than that in other parts of Sweden, fell far short of the results expected from the application of delimitation and partition measures.

Table II shows that, while the total area under cultivation in Sweden increased more than threefold during the nineteenth century, the northern provinces evinced only a moderately higher rate of growth. A more favorable impression is conveyed by the data referring to the number of farms which rose by approximately 280% in the north, against 110% in the country as a whole. The figures for the agricultural population show similar discrepancies in favor of the north, with a significant hiatus

[10] J. Guinchard, ed.: Sweden, *Historical and Statistical Handbook* (Stockholm: 1914), Second part, p. 170.

TABLE I. DISTRIBUTION OF LAND IN NORTHERN SWEDEN BY OWNERSHIP: 1900*

Provinces (Län)	Not Delimitated Land above the Line of Cultivation (1000 Hect.)	Delimitated Land			Land in Private Ownership in per cent of Delimitated Land
		State-owned (1000 Hect.)	Non-Profit Corporations (1000 Hect.)	In Private Ownership (1000 Hect.)	
Norrbotten.....	4,538.3	2,724.5	241.5	2,648.0	40.0
Västerbotten	1,371.5	1,190.7	.	3,024.7	76.2
Jämtland.....	1,011.6	216.9	1.1	3,764.2	94.8
Västernorrland...	.	183.4	12.7	2,389.3	92.5
Gäfleborg.....	.	94.1	41.8	1,658.1	92.2
Kopparberg	.	431.0	235.7	2,238.8	77.0
TOTAL: NORTHERN SWEDEN .	6,921.4	4,840.7	532.7	15,723.0	71.2

* *Source*: Norrlandskommittén's Betänkande (Stockholm 1904). Vol. I. p. 34, 35.

occurring around 1870. From then on, the agricultural population of the North continued its former rate of increase while the total agricultural population tended to decline.

The comparatively slow development of agriculture in the sparsely settled north during the period of delimitation reflects the plain fact that the land tracts granted to farmers and settlers did not include enough land fit for profitable farming. There seems little doubt that the authorities over-estimated the suitability of northern forest lands for agriculture, probably misguided by the rapid pace at which land was being cleared and put to the plow in the western parts of contemporary North America. If nothing more were required than to cut down trees, sow grain between the stumps and thus convert the clearing, step by step, into good farm land, Northern Sweden also bid fair to develop eventually into a New West, albeit on a more moderate scale. But farmers and settlers found out soon, if indeed they had not been aware of the fact before, that the forest soils of the cold North bore a thin layer of humus only, lacked lime, and were soon exhausted. Rocks and moraines, and serrated terrain made the clearing of land doubly arduous and required the help of horses which the struggling farmer could not always afford. Fertile bottom lands were rare, and mostly in the possession of the old-settled farmers. Disheartening experiences, especially among pioneers coming from the southern parts of the country, thus put a curb on the more rapid expansion of agriculture, or led to discontent among those who had to hang on for lack of better opportunities.

But even for the old-settled farmers delimitation was in some respects a blessing of doubtful merits, especially when subsequent partition divided up the common grant. This measure required the consolidation of each farmer's landed properties in as few as, and certainly not more than four pieces. Cropland was re-allocated and farmers rehabilitated

TABLE II. Cultivated Land, Number of Farms, and Agricultural Population in Sweden, and its Northern Provinces: 1805, 1870, 1910*

ITEMS	1805	1870	1910	Increase 1805–1910
Cultivated Land				
1000 Hectares				
Sweden	825.2	2,547.4	3,700.6	350%
North	88.6	282.3	480.1	446%
Number of Farms				
'000 omitted				
Sweden	240.0	450.0	498.5	108%
North	24.0	58.4	91.2	281%
Agricultural Population				
'000 omitted				
Sweden	1,789.5	2,683.7	2,572.7	44%
North	278.9	475.7	592.7	112%

[1] Länen: Norrbotten, Västerbotten, Jämtland, Västernorrland, Gäfleborg and Kopparberg.

* *Sources*: Cultivated Land: 1805 and 1870: Emigrationsutredningen, Bilaga V (Bygdestatistik), Table 71, Stockholm 1913; 1910: J. Guinchard. ed. Sweden, *op. cit.*, Vol. II, p. 42. Number of farms: 1805 estimated after N. Wohlin: Den svenska jordstyckningspolitiken. Ak. Avhdlg. Stockholm 1912, pp. 564f., 590/92; 1870 and 1910: P. Hellström, Norrland, *op. cit.* p. 144, Agricultural Population: N. Wohlin: Den jordsbruksidkande befolkningen i Sverige. Emigrations-utredningen, Bilaga IX, tables C and H., Stockholm: 1909.

wherever necessary for the achievement of this goal. Naturally, the peasants were loath to leave their homesteads and their fields close by. When a village was strung along a valley road, or lay in a cluster, the surveyor would draw the interior dividing lines in a fan-like fashion up the mountain slopes and clear through to the hither edge of the delimitated area, thus rendering the individual farm lots small at the base, but long in extension. In addition, the consolidated farm area was supposed to include the farmer's share of the mountain meadows and pasturage which he was wont to use in common with others. Intricate geodesic figures had to be devised in order to achieve the division of these grounds and yet connect them up with individual farm areas. This rang the death-knell for the old arrangements which had based the tending of herds, the cutting of timber, the hauling of hay, fuel, stored-up produce, etc., upon the joint efforts and common interests of the villagers. Singly and severally, the farmers were hardly able to take proper care of the cut up and distant meadows and pasture grounds. Gradually, these were allowed to fall into disuse, and farmers were obliged to replace the losses in feed supplies from their cultivated fields and nearby woods. True, this change helped to bring about the expansion of cropland, improvements in the methods of tillage and animal husbandry, but the transition from extensive grazing to integrated dirt and livestock farming was slow, painful and even disastrous for many of the smaller farmers. To them, and their better-situated neighbors as well, the large forest tracts allotted them in the course of delimitation and partition proved a source of vexation, and were frequently deemed of little value and even a burden.[11]

Here, then, arose circumstances which came to play a major part not only in the future development of Northern agriculture and forestry, but also in the reversal of Sweden's land policy during the last decades of the nineteenth and the first decade of the twentieth century. The ascendancy of the saw-mill industry brought the latent dangers to a head which had been injected into the Northern land tenure situation through delimitation and partition. The problems thus raised and their solution formed the core of the so-called Norrlands-question, which is a subject of sufficient scope and importance as to justify discussion in a subsequent article.

[11] John Frödin, "Bygdestudier i Norra Jämtland," *Lunds Universitets Årsskrift*, N. F. Avd. 1. (Lund: 1927), especially pp. 104-114. Bertil Boëthius, *Ur de stora skogarnas historia* (Stockholm: 1917). Chapter IX of this delightful book deals with the effects of delimitation and partition under the appropriate caption, "The Peasants withdraw from the Forests."

The Subsidy and Housing

By CHARLES ABRAMS*

THE subsidy is only a single aspect of housing policy; yet the form it ultimately takes will influence more than the housing program alone. In all its long history, both here and abroad, the subsidy has never been more significant than it is currently. It involves more than monetary outlay. The kind of economy in which we are to live may be influenced by the policy we devise for its dispensation.

The developments around the housing subsidy have taken place without benefit of maxim or definition. Each innovation creates its own precedent, forging another outward link to its further extension. Formulation of principles on the subsidy was never more crucial than it is today.

The Subsidy Defined

In the broad sense, a subsidy is any kind of grant or aid extended to an undertaking to which the public interest is imputed. The term has latterly been broken down into classifications embracing those subsidies which promote private operations in trade, industry, commerce, and agriculture and "grants in aid" made to assist other governmental units in their fulfillment of public purposes. A large number of government subsidies were prompted by economic or military considerations, such as the need to stimulate infant industries or to promote self-sufficiency in war. Today, however, a growing proportion of subsidies is used to advance infant social services. The government in recent years has committed itself to strengthening the nation's health and welfare, to encouraging employment, to reducing the hazards of insecurity. All of these social subsidies rest upon the proposition that government should intercede when private enterprise or private philanthropy proves unable or unwilling to meet the need.

Criteria For Subsidies

The principles governing use of subsidies have never been explored with the thoroughness devoted to some aspects of public finance such as taxation. Recent uses and abuses of the subsidy mechanism call for fresh examination of principles and their practical application to the changed American scene. As a background for discussion of the subsidy in relation to housing, five general criteria for subsidies are put forth here. Exceptions may be found but they should not affect their validity as general criteria.

A. The Subsidy Should Serve a Public Purpose. Opening the public purse and public privilege to private companies offers unlimited opportunity for abuse and even corruption. From the Yazoo land frauds of 1789-1795 down to the Elk Hills oil leases, the evils have been recurrent and obvious. The history of the United States is spotted with infamy rooted in the dispensation of public property to private interests on the pretext of public benefit.

Enlargement of the federal welfare power has opened almost boundless op-

*Lecturer, New School for Social Research, New York City; author, *Revolution in Land*. The principles and examples outlined in this article are not intended by the author as a complete exposition of the subsidy in housing. They are meant to incorporate some of the salient questions involved and are culled from a forthcoming book by the writer to be published in June 1946 by Harper & Bros.

portunities for misuse. To prevent perversion of public funds, the states that always had the welfare power surrounded themselves with many checks —constitutional inhibitions, limitations upon their cities' expenditures, taxpayers' remedies, and supervision by courts. Many of these self-imposed limitations followed in the wake of local scandals. These limitations are absent on the federal plane. The problem is made doubly difficult by ambiguity and variability in the definition of public benefit at the national level.

In the housing field particularly, a public benefit can be attributed to almost every appropriation. It is to the general good that more people buy homes, that these homes not be foreclosed, that home-building be more active. Therefore, an ample supply of building funds seems beneficial to the public welfare. Government insurance of lending institutions as well as the small creditors who deposit the funds with them would tend to increase the supply of building funds. Housing shortages spell inflation and public inconvenience. Therefore, subventions to the builder seem authorized as well as yield insurance to lending institutions, and liberal credit aid to enable building of more homes. Slums are a menace to health. Therefore, authorization is claimed for urban redevelopment by private enterprise. The list can be drawn out endlessly and in each case an argument made that the public welfare is served.

More than ever, a greater responsibility for determining whether a subsidy is in the public interest now rests upon the electorate. Public vigilance and ability to distinguish public service from opportunism are more important than ever.

Subsidies to improve health and safety should occupy a prime place in the definition of public welfare. Here profit to private agencies should not be the primary end of the subsidy but should exist only as a by-product in the performance of the main aim, in the same way as contractors would benefit from the building of a school.

B. The Administration of the Subsidized Operation Should Be Public or Be Publicly Controlled. Usually no private agency should get a subsidy for any public purpose if it can be administered by a public agency. It cannot, of course, be said summarily that subsidies should go only to public agencies, for there are fields in which private companies, given some public aid, might function more beneficially. The subsidies to encourage the aviation industry are a current example. A condition in most cases should be continuing regulation by the government. Sometimes rigid regulation may be dispensed with, as where a slum site is bought by public enterprise, cleared, and then resold through public bidding to private enterprise for private development. Here, use zoning or covenants running with the land might properly be used to protect the future public interest.

Sometimes rigid regulation is not practical, as when industries are induced to settle in a community — a subsidy of dubious wisdom — or when homesteads or eleemosynary activities are encouraged by tax exemption. Here, if the subsidy be granted, the aim should be to make the opportunity available by general law and to a broad general group rather than by special arrangement, or to a specially selected few, or worse still, to a single company.

C. The Subsidy Should Be Defined

and Certain. Hidden or devious subsidies are often preferred to minimize complaints from taxpayers. Examples are loans at low interest or none, favorable tax policies, free city services or facilities, and insurance predicated upon presumably sound but untested actuarial schemes. The word "insurance" has a soft tonal quality since it presupposes no cost at all to the taxpayers—until the actuarial formula breaks down.

It seems obvious, too, that the terms of subsidies should be fully known to both the taxpayer and the recipient, so that the public may weigh the benefits or the subsidy against the costs, and the recipient may base his commitments on the sum-certain subsidy payment.

D. The Subsidy Should Burden the Taxpayer as Little as Possible. No argument against excessive subsidies is needed. But there is often confusion over the question of when a subsidy is excessive. The capital grant for housing is an example. The issue over the capital grant became heated when the Wagner-Steagall Bill, which subsequently became the United States Housing Act, was being formulated. Instead of annual subsidies for a period of sixty years, an outright capital grant was advocated by the then Secretary of the Treasury, Henry Morgenthau. Great Britain, Holland and Norway had abandoned lump-sum payments. There is no reason why sixty years of deficits should be fused into one and paid off in a single year. We do not do this for education or other governmental commitments. The annual grant is more practical from the budgetary standpoint, too, since the subsidy can be adjusted upward in hard times when tenants pay less, downward in good times when tenants pay higher rents, as during the second world war. On the other hand, the capital grant tempts the recipient to build more expensively and affords no opportunity for adjustment to the variations of the economic curve.

Another example of excessive subsidies is the exemption of building funds from income tax proposed by the National Association of Real Estate Boards. This would exempt wealthy investors from taxes on the income placed in bonds for land acquisition and housing construction. A housing unit costing $2,000 for land and $40,000 for building and receiving $131.00 in annual federal contributions under the United States Housing Act, would entail, under the tax-abatement plan, a capital grant equivalent to $4,800, if the investor were in the 80% tax bracket.[1]

Sometimes the subsidy and the method of paying for it create more nuisance than is justified by the benefit. An instance is the local housing subsidy of New York City, raised through an occupancy tax of $1. per $1,000 of rent paid on all gainfully occupied premises (minimum of $1, maximum $6). In 1943-1944, the tax yielded $456,000 and had to be paid by 350,000 people, though it could rehouse less than 3500 families. To make that microscopic nick in the housing problem, every business in New York has to fill out an elaborate form each year and remit an average of $1.30. Taxes like this make subsidies unpopular without accomplishing anything substantial.

E. The Subsidy Should Be One That Can Be Practically Administered. Excessive supervision is one factor that may increase the costs of the improvement or service and neutralize the value

[1] See Address by Sen. Allen J. Ellender before the National Public Housing Conference, published in *Public Housing*, April 1944.

of the subsidy. Here, a distinction must be drawn between public and private recipient agencies. Local public agencies administering a subsidized program should have the greatest measure of administrative freedom consistent with carrying out the purpose practically. They should not be looked upon as dependents on the federal bounty but as auspicious instrumentalities for carrying out state and national purposes effectively.

On the other hand, private companies carrying out public purposes require rigid regulation. For such regulation the public too often pays an excessive price. Either few honorable companies agree to the restraints imposed or there is evasion and reaping of secret benefits. For this reason, the performance of public functions by public agencies is indicated.

Examples of subsidies not practically administered are the FHA limited-dividend formula, which in the effort to limit return on speculative building operations produced few bona fide applicants, and the PWA subsidy for public housing where much of the subsidy was cancelled out by over-rigid federal overseeing.

The Subsidy and State Governments

Only one state, New York, has joined with the federal and local governments in a subsidy for public housing yet, as a long-range welfare program, housing should have state support. Either the current, federal-city formula should be revised to provide tri-partite participation, or the states should launch independent programs. More favorable federal treatment of localities aided by states would be an effective inducement.

Some governors have voiced demands for restoration of states' rights which they feel have been injured by the federal government's social programs. Though New York State's limited contribution could not possibly solve the slum problem without federal aid, Thomas E. Dewey of New York, in his first gubernatorial campaign of 1938, said the federal slum clearance program was an "invasion of the business of the states" and that it meant "increasing concentration of power in Washington." The general emphasis on states' rights was again in evidence when Republican governors of states that contributed no state aid to housing opposed federal aid.[2]

Rights cannot be separated from responsibilities. The state officials who suggest that federal welfare programs be scuttled because they encroach upon the state's domain have a first duty, it would seem, to prove their readiness to take up the burdens carried by the federal government. The legislatures of forty states made it possible for local housing authorities to exist and to receive federal aid. Having approved the federal program and set up the agencies, the states must either continue to let federal money cross their borders, substitute state cash, or repeal the laws. In any case, federal participation in housing does not usurp any of the powers reserved to the states.

The Cash Subsidies

The cash subsidy, as noted earlier, is the most honest and respectable type but is apt to be the least popular politically. In times of stress, welfare activities supported by such a subsidy make an easy target for economy marksmen who specialize in cancelling out welfare appropriations. Too often, the taxpayer's feel-

[2] But in his later addresses Governor Dewey seemed to veer toward a greater federal recognition of its welfare responsibilities including slum clearance.

ing for his fellowmen is lost in the seams of his purse. Hence, we find that municipal governments eschew any cash grants to their local housing authorities, taking the alternative of tax exemption which, on the surface, seems less costly because nothing is paid out.

Lending of Superior Credit

Lending of superior public credit is a variety of subsidy despite a prevalent illusion that a government loses nothing in the transaction. The element of risk is generally present and often undeterminable. There is no certainty, for example, that FHA insurance reserves will be enough to cover the losses, particularly since its whole experience so far is based upon a rising real estate market and a shortage in homes. A substantial increase in the public debt, or extensive use of the federal credit, may ultimately affect the marketability and interest rate of federal bonds. In any event, monetary loss should not be the true test of subsidy. Responsible endorsement of a note can create substantial income for the maker from the funds borrowed. The endorser may never be called upon to make good but he still makes a contribution of substance. One's credit is as much an asset as one's cash and the use of either for another's benefit brings it within the subsidy classification whether or not anything is lost in the transaction.

Use of superior credit is effected through guarantee or insurance by the government of mortgages or yields, or by federal borrowing and re-lending of the borrowed funds at its cost to the government. This form of subsidy has stirred the imagination of private real estate groups, particularly since it costs the government nothing on paper. They are urging that speculative builders be given government loans and subsidies under the same terms as extended to local housing authorities, on the claim that private enterprise could then build for the low-income group. The cases where social motivations and private profit will go hand in hand are rare, the dangers of abuse too patent to be ventured. The rigid regulation that would be necessary to guard against such abuse would reduce the quantity of honorable applicants to a trickle.

Interest Subsidies

An *interest subsidy* may take several forms. It may be represented by a subsidy payment equivalent to the interest or by a loan of principal with the interest waived.

Interest subsidies when made to public agencies for public purposes are in a different category from those made to private companies, particularly where the public borrower is carrying out a common public purpose. Under the United States Housing Act, the government lends to local housing authorities at ½ of 1% above the going federal rate when it should be made at the cost of the money. RFC refused to lend to authorities at less than the rate it charged private borrowers, then over 4%. The federal government should not profit here, though it might properly pass on part of the administrative cost of borrowing. There is a marked difference between loans of money to private individuals at higher than government cost, as in RFC private loans, and loans to public agencies for performance of common public purposes. In the latter, the recipient is as much in the category of an agent or co-operator in the public welfare as it is a borrower, and the superior government should not seek to effect a profit.

Land as a Subsidy

Land grants are a common and useful form of subsidy. The federal government still owns 24% of continental United States, but little of this land is suitable for housing projects. State-owned lands are likewise of little use.

Cities own both unusable and usable land. Property acquired for non-payment of taxes usually consists of undesirable land on the outskirts, or of isolated plots in the central areas. Lands used for municipal purposes, such as parks and playgrounds are well located but such areas should not be diminished in the planning of housing projects though the projects can often be advantageously laid out around a park; playgrounds have been relocated and expanded as a result of soundly planned housing developments.

City streets represent the principal type of land that can be used, especially in congested areas where streets were laid out on the gridiron plan. Considerable land has been wasted in the laying out of these streets and less street area may be needed today in a properly designed project. A substantial part of street land can be used for buildings and open spaces, at the same time effecting a smaller land coverage and a more livably-designed undertaking. In many metropolitan projects, for example, thirty per cent or more of the project site consists of old streets, a great deal of which can be better utilized by relocation.

While the conveyance of streets for public housing is a desirable subsidy, where the streets remain in public hands, donation to private interests (as in the Stuyvesant Town project in New York City) should be discouraged.

Instead of giving tax exemption as a subsidy to private interests, cities might undertake to assemble privately-owned land and sell it at or below acquisition cost to private developers for higher rent developments. The distinction between these two kinds of aid is important because of recent agitation for large-scale assemblage in blighted areas for post-war private building. The key to understanding is that in spite of the high cost of slum areas, the land cost is not the dominant investment. It should be clearly understood that, generally, the high land cost in slum areas bears a small ratio to the tax revenues that the city would gain through the construction of private projects. The new buildings might be worth two or four times as much as the land, depending upon the coverage deemed desirable. Taxed on that basis, they would frequently provide handsome repayment for the city's "loss" in the land sale.

To illustrate, suppose that a city buys land in a slum area at market price and resells, through public bidding, for private development at a price near its use value. The city would suffer a temporary loss in the difference between the buying and selling price, but it would count continuing dollar gains out of new taxes after the project was built. There would be no subsidy at all. Here the city acts as a frugal proprietor while carrying out its public functions. It would be good business judgment to encourage as much new taxpaying private construction as possible.

Leasing or Sale of Projects to Public Agencies

This type of subsidy has been used by federal agencies in the past and may be employed again. Both PWA and the Farm Security Administration built and leased dwellings on terms that consti-

tuted a subsidy. PWA projects were government-built, then leased to local housing authorities for a rental that would enable the authorities to accommodate low-income families. Homes built by the Farm Security Administration were rented at prices the tenants could afford.

The principal objection to the leasing plan in public housing is that it may check local initiative and eliminate the possibility of local private financing which is more feasible when the property is owned in fee.

A good subsidy by sale of public property might be made if the government's war housing projects were sold to local housing authorities. It would be a useful and worthy subsidy and a justifiable shift in the use of public property from the public-wartime-federal to a public-peacetime-local-federal use.

Subsidies Based on Project Cost

The great bulk of public housing in the United States was built under the United States Housing Act, which prescribes a serial subsidy equal to the going federal interest rate plus one per cent of the development cost of the project.

The advantage of this plan is the flexibility which permits adjustment to varying local costs and conditions and changing national conditions. Since the subsidy is based upon development cost rather than upon the number of persons rehoused or the number of dwellings built, slum clearance with its higher costs is not discouraged.

The central government does not automatically pay out the maximum subsidy to the local housing authorities. It pays only the sum required to bridge the gap between rental income and total carrying costs. The maximum annual contributions have never been reached. For project fiscal years ending in 1941 the contributions actually paid averaged 88.2% of the maximum permitted for these projects. Because of rent increases due to increasing income of tenants, the percentage of maximum paid each year has declined steadily until for project fiscal years ending 1945 only 51.2% of the maximum was actually paid. As families whose incomes have increased above the limit for continued occupancy are moved out of projects and as lower-income families move in, it is expected that annual contributions will again increase.

The subsidy based on development cost may sometimes encourage purchase of expensive land, since local political considerations favor the demolition of slums and construction by the housing authorities on slum sites. Another objection to this subsidy is that the public finds it hard to understand, a condition which has been capitalized upon by the opponents of public housing. An innovation in American fiscal practices, the workings of the formula are still muddled in many Congressional minds.[3] Laymen can more easily grasp the fact that a federal subsidy amounts to $100 annually for each family rehoused, but a subsidy based solely upon so much per family rehoused has objections to it too, as the English learned after the Chamberlain formula of 1923.[4]

There are few formulae which are objection-free. Most depend for their successful operation upon sound administration. While the subsidy based on

[3] The subsidy is often exaggerated by multiplying the annual contribution by the number of years it is to be given, a calculation which assumes that given conditions will persist unchanged for 60 years. See Congressional Record, No. 84:3452.

[4] Rise in costs, differential costs in various communities, and changes in the interest rates would complicate the working of the formula.

project cost may not be all-perfect, it has functioned reasonably well and despite these few objections ought to be continued for the present. Wider publication of the cost per family of the subsidy and the more liberal dissemination of information generally on the program would help keep the public apprized of the cost.

Rent-Certificate Subsidies

Subsidies paid directly to the tenant are advocated by real estate groups. Among the many objections to this plan, one is that it would make the tenant a permanent recipient of public charity. There is a vast spiritual difference between paying the required rent on a government-owned building and being on a permanent dole. In any case, this so-called rent certificate plan or slum dole (advocated in November 1943 by the National Association of Real Estate Boards) would operate to perpetuate the slums, not remove them. Since every landlord would seek to benefit from as much of the payment as possible, he would make little if any expenditure. Administration would be difficult if not impossible for each building would require separate and continuing inspection. During the depression in the 1930s, New York City's emergency relief bureau spent $30,000,000 annually for rent —a sum which, if paid annually, would have been sufficient to subsidize modern, low-rent housing for more than half of the city's slum dwellers. Yet, not a single family got a decent home. If standards were raised adequately, the landlords would not have complied and the tenants would not have gotten homes. The dumbbell flats that were thirty per cent empty simply filled up with the undoubling of families encouraged by rent relief and slum values zoomed. The plan would produce no new housing for slum dwellers and would extend the life of the old ones.

Tax Exemption as a Subsidy

There is a distinction between tax exemption granted for private housing and that granted for public low-rent housing. This must be grasped, particularly because of the indiscriminate tendency to extend huge tax exemption grants to urban redevelopment companies and other private operations.

The realty tax revenues on which a city depends for its support are not constant. As some real property depreciates and its valuation shrinks, other revenues from new construction take their place. If the city depended solely upon existing properties, declining values resulting from their physical depreciation would soon wipe out a major part of its revenues. Its future solvency is therefore hinged to the existing, as well as to the potential revenues resulting from replacements or other new construction.

When, therefore, exemption is extended to private development for a higher income tenantry, the city is deprived of the potential revenues which would have accrued to it when private enterprise in the normal course of events got around to providing dwellings for that group. Exemption of a project housing those whom private enterprise could provide for, either through new or acceptable used housing, is a gift of public moneys for a private purpose.

When, however, the city exempts low-rent public housing projects from tax on the improvements (charging only the old levy existing prior to the building of the new project), it loses no potential revenues since the low-income families are

not prospective customers for the potential private enterprise market. Therefore, such exemptions on public housing, while technically they may be subsidies, represent no out-of-pocket loss. The tax exemption on such projects represents a dollar loss only to the extent that payments in lieu of taxes run less than the taxes paid on the site prior to its reconstruction and here it must be matched against the social and economic gains resulting from rehousing.

Institutional Obstacles to Land Improvement

By JOHN F. TIMMONS*

ALL programs to conserve and improve the Nation's land resources have been thwarted to a greater or lesser extent by maladjustments in our landed institutions. The Soil Conservation Service, the Soil Conservation Districts, the Agricultural Adjustment Administration in its program of soil-building practices, and the Farm Security Administration have all encountered serious obstacles in trying to bring about the adoption of conservational land use practices —obstacles arising out of debt obligations, tenancy situations, absentee ownership, certain inheritance practices and various exploitative customs and traditions characterizing our landed institutions. Basic causes of these obstacles spring from the general attitude of exploitation that has become part and parcel of our fee simple system of landed property. This attitude, and the customs and institutions it has engendered, arose out of the pioneer era when land resources were seemingly unlimited. Its continuation into an era of limited land resources runs counterwise to the Nation's welfare and efforts to conserve scarce resources.

Several studies in recent years have focused attention upon institutional factors influencing land improvement. Results of these investigations have been reported in various research bulletins and journal articles.[1] Partly as an extension of these earlier researches, but mostly in direct recognition of obstacles which landed institutions place in the path of land improvement programs, a series of special investigations were undertaken as part of the USDA Flood Control Surveys in certain flood problem watersheds throughout the Nation.[2] These surveys, initiated in 1938, were in full swing when Pearl Harbor temporarily put an end to activities not directly and immediately related to the war effort. Several of the surveys in various stages of completion in 1941 have subsequently been finished and some of the reports have been published.[3] Recently, legislation has been enacted and plans are now under way for the resumption of these surveys and for programs to effectuate survey recommendations.[4]

This article summarizes results of the institutional aspects of certain of these watershed studies in the interest of improving our understanding of institu-

* U. S. Bureau of Agricultural Economics, Washington, D. C. The data and most of the ideas contained in this article were developed from studies made in connection with selected watershed erosion control and water run-off retardation surveys in progress from 1938 to 1942. The author is indebted for many helpful suggestions in developing these studies to Marshall Harris, H. H. Wooten, and other associates in the Bureau of Agricultural Economics.

[1] See Rainer Schickele and John P. Hurd, *Socio-Economic Phases of Soil Conservation in the Tarkio Creek Area.* Iowa Expt. Sta. Research Bul. 241; Rainer Schickele, John P. Himmel, and Russel M. Hurd, *Economic Phases of Erosion Control in Southern Iowa and Northern Missouri.* Iowa Expt. Sta. Bul. 333; "Tenancy and Soil Conservation," *Soils and Men,* USDA Yearbook, 1938; Rainer Schickele and Charles A. Norman, *Farm Tenure in Iowa, I., Tenancy Problems and Their Relation to Agricultural Conservation.* Iowa Expt. Sta. Bul. 354; "The Land Tenure Problem in Oklahoma," *Current Farm Economics,* Okla. A. & M. College, Stillwater, Oklahoma; Peter Nelson, "Landlord-Tenant Relations in the Southwest with Special Reference to Oklahoma," *The Southwestern Social Science Quarterly,* March 1939; J. A. Baker, "Tenure Status and Land Use Patterns in the Corn Belt," Land Economics Report No. 5, USDA, Washington, D. C., 1939.

[2] For authorization of these surveys see: *Flood Control Act of June 22, 1936,* Public No. 738, 75th Congress; *Flood Control Act of Aug. 28, 1937,* Public No. 406, 75th Congress.

[3] *Survey Report on the Trinity River Watershed,* House Document No. 708, 77th Congress, 2nd Session, 1942. *Survey of the Little Tallahatchie Watershed in Mississippi,* House Document No. 892, 77th Congress, 2nd Session, 1942. *Watershed of the Washita River,* House Document No. 275, 78th Congress, 1st Session, 1942. Gov. Printing Office, Washington, D. C.

[4] *Flood Control Act of December 22, 1944.* Public Law No. 534, 78th Congress, 2nd Session

tional obstacles to land improvement programs by presenting some further evidence and certain refinements of earlier interpretations. These findings should prove helpful in the years which lie immediately ahead when the Nation resumes its efforts, temporarily halted during the war years, to conserve and improve our land resources.

Characteristics of Areas Studied

Probable effects of landed institutions upon erosion control and water run-off retardation were studied as a basic part of watershed surveys in three watersheds throughout the South—the Washita in Southwestern Oklahoma, the Tallahatchie in Northern Mississippi and the Trinity in East Central Texas. In each of these three watersheds over 60 percent of the farms were operated by tenants; around one-third of the tenants moved each year; between 80 and 90 percent of the leases were for only one year; almost one-half of the owner-operated farms were mortgaged; the ratio of mortgaged indebtedness to value of farms mortgaged was over 30 percent; the farm economy was centered around cotton production; and farms usually consisted of small units based chiefly upon intensive cotton culture. It soon became obvious that these and closely related institutional conditions presented real handicaps in effecting measures necessary to prevent soil erosion and to retard water run-off—the twin objectives of USDA flood control surveys.

As similar institutional conditions prevailed in the three watersheds and as the same general results were obtained from all surveys, findings of only one of the watersheds—the Trinity—are presented in detail. Illustrations from the other two watersheds are used for purposes of contrast and to emphasize particular situations. Detailed findings for the Washita and Tallahatchie as well as the Trinity watersheds appear in the published reports and substantiating documents.[5]

In presenting results of these surveys, tenure conditions—particularly those embracing tenancy—are spotlighted. This approach is followed in order to bring the scope of this report within manageable proportions and because unstable forms of tenancy, widespread throughout the areas studied, present some of the most challenging institutional hurdles to be overcome in effecting land improvement measures. Closely related institutional factors such as excessive mortgage indebtedness and small size of farm are brought into the analysis to illustrate other significant types of institutional obstacles and how they interfere with the improvement of land resources.

Erosion Ratings by Tenure Groups

Much has been written in support of the thesis that tenants as a group exploit land resources to a greater degree than do other tenure groups. As a generalization this thesis is probably valid, but when we begin to particularize and apply the proposition to specific situations it loses significance and validity. In a comprehensive appraisal of tenure-erosion studies one student concludes, "The complexity of the whole problem and the indicated influences of various factors included show definitely that ownership does not necessarily mean conservation, that tenancy does not necessarily mean soil erosion and depletion, and that differences in farming practices on owner and tenant farms may be a reflection of many causes other than differences in tenure."[6] Results of the water-

[5] Documents Nos. 275, 708, and 892, *op. cit.*

[6] Otis T. Osgood, "Some Observations on the Relation of Farm Land Tenure to Soil Erosion and Depletion," *Journal of Land & Public Utility Economics*, November 1941, p. 422.

shed surveys would seem to help validate these observations.

Table I shows that, for the Trinity watershed as a whole, erosion conditions were 11 percent more serious on tenant- than on owner-operated farms free of mortgage.[7] Mortgaged owner-operated farms were eroded 5 percent more seriously than unmortgaged owner-operated farms but about 6 percent less seriously than tenant-operated farms. Similar results were obtained from the other two watershed surveys.

While these general conditions apply to the Trinity watershed as a whole they do not hold true for certain subareas within the watershed. They have even less application to individual farms. It is interesting that unmortgaged farms in the critical part of the West Cross Timbers area were 7 percent more seriously eroded than mortgaged farms in the same

[7] Validity of results obtained in relating present erosion conditions to existing tenure conditions is questionable since it becomes difficult to ascertain whether erosion caused or was caused by tenant operation. For example, tenancy may constitute but a step in land abandonment brought on by other factors. On the other hand, tenancy may contribute to the wasting away and eventual abandonment of farm land through hindering soil improvement practices. Since soil erosion is the result of a long-time progressive process of land use, efforts must be made to identify tenure conditions over the same long period of time during which the land was subjected to misuse. In an attempt to overcome this difficulty, the prevailing tenure history extending over the previous twenty-five years was obtained for each farm in order to reflect more accurately the tenure conditions under which the farms had been operated while erosion and depletion were in process. Corrections were made for slope variations while soil types were fairly uniform within each land use area, thus minimizing physical variations in the farms studied. Procedures used in computing the tenure and erosion indices are on file in the Division of Land Economics, BAE, USDA.

TABLE I. Erosion Run-off Conditions: 424 Farms in the Trinity Watershed, Texas, Grouped According to Tenure History of Farms by Land Use Area.

Land Use Area	Prevailing Tenure Arrangements Under Which Farms Have Been Operated for the Last 25 Years			
	Erosion Run-off Ratings of Free Owners*	Erosion Run-off Ratings as Percentage of Rating of Free Owner		
		Free Owner	Mortgaged Owner	Tenant
West Cross Timbers.....				
Rangeland.....	3.1	100	113	110
Critical.....	3.0	100	93	117
Grand Prairie				
Rangeland.....	2.3	100	109	104
Farm Land.....	3.7	100	103	97
East Cross Timbers.....	4.1	100	102	105
Blackland				
Rough.....	3.5	100	106	111
Escarpment.....	3.5	100	...**	131
Normal.....	4.3	100	112	109
Transition.....	3.5	100	...**	131
Gulf Coastal Plain				
Normal.....	4.0	100	110	...**
Rough.....	2.8	100	93	139
Watershed Average.....	3.7	100	105	111

* Erosion run-off ratings for individual farms varied from 1.0 indicating no erosion to 8.0 indicating severe erosion.
** Insufficient information.

area. One explanation of this condition may be found in size of farms which was considerably smaller for the unmortgaged owners. Similar conditions existed in the Rough section of the Gulf Coastal Plain area. Tenant-operated farms in the Farmland section of the Grand Prairie were slightly less eroded than the owner-operated farms either mortgaged or unmortgaged. Here again the small size of the owner-operated farms probably did not permit the use of conservation methods. Similar conditions also existed in sections of the Washita and Tallahatchie watersheds.

Further evidence of institutional obstacles to conservation was found in the Tallahatchie watershed where, according to AAA data, tenants worked out only three-fourths as much of the allowable soil-building conservation payments as did owners.[8] Similar results were found in sample areas throughout the other two watersheds.

Reports of the watershed surveys submitted to the Congress clearly recognized these obstacles. The Trinity report concludes, "The nature of tenancy in this watershed will add to difficulties in bringing about the desired adjustments in land use under the remedial program."[9] The Tallahatchie report points out that "the high percentage of tenancy, together with the prevailing system of row-crop farming, has done much to aggravate flood and erosion problems."[10] The Washita report concludes with this statement: "This instability [of tenure] and the large proportion of small size units, have fostered a cash and row-crop economy, resulting in heavy rates of soil depletion and surface run-off on the watershed."[11] All of these statements emphasize the influence of institutional maladjustments upon land improvement and remedial programs designed to promote conservation.

Source and Nature of Obstacles

From evidence obtained in the watershed surveys, institutional obstacles may be considered as developing out of five general types of situations. Any land improvement program failing to provide for these conditions will find its expected attainments severely compromised if not completely thwarted.

The first type includes customary practices, inertia, and ignorance of good land use. Most people are familiar with the farmers' traditional desire tc drive a straight furrow—a custom frequently broken by gullies necessitating contour tillage. Customary cotton culture, crop-share rent, one year renting arrangements are also examples of customary practices. According to the Trinity report, "over 80 percent of the land rental agreements are verbal and indefinite, and are based on a cash-crop farming system which emphasizes soil-depleting and erosion-permitting crops."[12] Similar conclusions were reached in another study embracing the cotton belt: "Unless the program to adjust land use in the upland cotton belt can remove one formidable stumbling block, all its charts, tables, and statistics will not suffice to change seriously the fundamental agricultural pattern of the region. And that stumbling block is all the more difficult to push aside since it is elusive, intangible, a compound of prejudice and inertia. It is, to be brief, the traditional 'third and fourth' lease of the cotton South; the custom of setting the tenant's rent at one-fourth of the cotton he grows, and one-third of his other crops."[13] Fur-

[8] House Document No. 892, *op. cit.*, p. 12.
[9] House Document No. 708, *op. cit.*, p. 8.
[10] House Document No. 892, *op. cit.*, p. 12.
[11] House Document No. 275, *op. cit.*, p. 6.
[12] House Document No. 708, *op. cit.*, p. 9.
[13] J. A. Baker, "New Lease for the South," *Land Policy Review*, July-August, p. 7.

thermore, community habit and custom may influence the operator to organize his farm on an uneconomic basis. For example, a farmer in the Tallahatchie watershed, where half-row equipment is customarily used, remarked that he had once seen full-row equipment advertised in the *Sears Roebuck and Co. Catalogue* but he didn't reckon it would work.

The second source of institutional obstacles takes place when one individual is able to achieve immediate gain, and to shift long-time losses to someone else. An outstanding example of this situation is the part-owner who cash rents certain lands, in addition to what he owns, and then crops the rented land very heavily and feeds the crops from the rented land on his own land. In this way he may build up his own land at the expense of the rented land. Professor A. C. Bunce has described this type of institutional obstacle in these words, "In this case the gain from exploitation is shared between the tenant and the landlord, but the total capital loss will generally be borne by the landlord. When this is true, it is the tenant's advantage to exploit the soil as long as the exploitative system gives a higher annual return than conservation, regardless of the permanent damage to the land."[14] Another illustration involves the cash renter who exploits the land and retains the profits without putting anything back into the farm. This explanation was probably back of the prosperous tenant farmer's retort to the county agent's advice on conservation, "You can't teach me anything about farming, why I've already worn out five farms!" Another example of this obstacle may be found in the actions of a tenant farmer in the Trinity watershed who stated that his first farming operation on a new farm was to smooth down the terraces so that he could farm the land. No land improvement program can thrive in the face of such conditions.

A third source of institutional obstacles is the immediate pressure for cash to pay interest, principal, taxes, rent, and living expenses which forces the operator to exploit the land to the extent of disinvesting part of its capital value. In the Trinity watershed, "the common practice of mortgaging each crop at from 8 to 10 percent interest, for an average period of 7 months, has encouraged farmers to concentrate on a cropping system that prevents long-range plans for land improvements."[15] In the Tallahatchie watershed, "this indebtedness forces the planting of as much cotton as possible to liquidate the loan, leaving barely enough money to meet the farmer's living expenses until spring. This continuing cycle of indebtedness demands a high proportion of cash crop farming and discourages expenditures for conservation practices."[16] In regard to the tax pressure the same report continues: "Thus the tax load of the watershed is a heavy burden on the farmer, and represents another incentive to perpetuating an agricultural system, which returns the greatest possible immediate return."[17]

A closely allied institutional obstacle grows out of inadequately-sized units. With the advent of increased efficiency of labor, gradual depletion of the soil, and the shift away from self-sufficing agriculture, more land than formerly is needed to effect a conservative system of farming and at the same time to provide a satisfactory living for the operator's family. This situation is particularly serious on tenant-operated farms which

[14] A. C. Bunce, *Economics of Soil Conservation* (Ames: Iowa State College Press, 1942), p. 95.

[15] House Document No. 708., *op. cit.*, p. 9.

[16] House Document No. 892, *op. cit.*, p. 13.

[17] *Ibid.*, p. 13.

are expected to help support two families—the landlord's and tenant's—instead of one as in cases of owner-operators. If the farm is mortgaged, the farm must also contribute to an additional claimant—the mortgagee. The inadequacy of farm size in the Trinity watershed was described in these words: "Many farms are too small to support their operators without exploiting the land. The average farmer in the Trinity Valley has insufficient income to finance improvements necessary for protection of the land."[18] Ownership patterns and local customs along with inadequate capital and limited managerial abilities contributed heavily toward inadequate size of farms. In general, the size of ownership units has not kept pace with increases in efficiency of farm production. Often it is difficult for either tenant or owner to find enough conveniently located land to form an adequate farm unit as a result of historical patterns of land ownership.

The fifth major source of institutional obstacles consists of uncertainties of expectation in regard to the operator's future relationship to the farm. In the Tallahatchie watershed, "tenant farmers or share croppers cannot be expected to employ conservation measures requiring an outlay of cash when their tenure on the land is usually only a year or two."[19] This type of situation appears to be one of the most important explanations of why many tenants do not conserve and improve the land they rent and is further illustrated in the following example.

An Example

In order to point out more concretely why tenants as a group may not be expected to improve the land they operate, annual cumulative costs and benefits for the proposed erosion control and water run-off retardation program for the Trinity watershed were computed for selected groups of farms within each of the major land use areas. In making this analysis, costs and benefits resulting from the proposed program were divided between landlord and tenant on the basis of shares each contributed and received under prevailing rental agreements. By making these calculations it is possible to show the financial effects upon the landlord and tenant from the beginning of the program until the period of maximum benefits has been reached.[20]

Tables II and III summarize the tenant's annual cumulative costs and benefits of the proposed program for a fifteen-year period required for the program to come into full operation.[21] According to these data, tenants in the West Cross Timbers area operating small crop farms must remain on their present farms for a period of 12 years before they are fully compensated for installing and maintaining flood control measures. Or, if tenants share only maintenance costs, they must remain on their farm for as long as ten years before being fully compensated for their share of maintenance costs borne over the previous nine years. However, according to the 1940 Census data presented in Table IV, only one out of every fourteen tenants in this particular area remains on the same farm for as long as ten years, and still fewer remain on the same farm for 12 years.

In the East Cross Timbers area, tenants must remain on the same farm seven years before they are fully compensated for their share in installing and main-

[18] House Document No. 708, *op. cit.*, p. 8.

[19] Houes Document No. 892, *op. cit.*, p. 12.

[20] Report on methods used in making this analysis is on file in the Division of Land Economics, B.A.E., U.S.D.A.

[21] Kenneth H. Bachman and George Townsend of the Bureau of Agricultural Economics assisted in the collection and analysis of basic data upon which Tables II and III are based.

taining the program. Of even more serious import, few tenants possess reasonable assurance of remaining on their present farms beyond the end of any one year, even though they may actually remain on their farms for several years. Nor have these tenants any assurance from their rental contracts of being compensated for unused portions of their land improvements in case they move. Obviously, these farmers can scarcely be expected to invest in a program from which they cannot hope for remuneration from their investment—much less returns upon that investment—until as many as 7 or 12 years have elapsed.

An appreciable proportion of the owner-operators in these areas also leave their farms before they receive full benefits from land improvements recommended by the program. The landowner, however, is in a much different economic as well as legal position since future expected benefits tend to become capitalized into the present value of the land he owns. Consequently, the excess of immediate costs over immediate benefits will tend to be offset by the anticipated future increase in income which is reflected in increased land values. However, the full value of the various types of land improvements included in the proposed erosion control and water run-off retardation program are not always appreciated. Consequently, these improvements frequently may not have the widely recognized value that is implicit in the thesis that future incomes can be capitalized into present sales values. The value which potential buyers of farm land place upon land improvements such as terraces, sodding,

TABLE II. TENANT'S NET CUMULATIVE INCOME (INCLUDING COST OF INSTALLATION) FROM PROPOSED EROSION CONTROL AND WATER RUN-OFF RETARDATION PROGRAM: TRINITY WATERSHED, SELECTED SIZE-TYPE FARM GROUPS IN MAJOR LAND USE AREAS*

Year From Initiation of Program	Net Income by Type and Size of Farms and Area				
	Row-crop farms small-sized West Cross Timbers	Row-crop farms medium-sized Grand Prairie	Row-crop farms medium-sized East Cross Timbers	Row-crop farms small-sized Blackland Prairie	Row-crop farms medium-sized Gulf Coastal Plain
	(dollars)	(dollars)	(dollars)	(dollars)	(dollars)
First	− 192	− 132	− 333	− 93	− 207
Second	− 229	− 1	− 343	− 22	− 146
Third	− 268	136	− 353	52	− 84
Fourth	− 309	280	− 364	130	− 18
Fifth	− 351	431	− 375	212	51
Sixth	− 307	967	− 112	428	415
Seventh	− 262	1,529	165	656	798
Eighth	− 214	2,120	456	895	1,200
Ninth	− 164	2,740	761	1,145	1,621
Tenth	− 111	3,391	1,082	1,409	2,064
Eleventh	− 55	4,075	1,419	1,685	2,529
Twelfth	3	4,793	1,772	1,976	3,017
Thirteenth	65	5,546	2,143	2,280	3,530
Fourteenth	129	6,338	2,533	2,600	4,000
Fifteenth	196	7,169	2,942	2,937	4,562

* Calculated on the basis of the share landlords and tenants furnish and receive under prevailing rental agreements.

etc., may be less than costs of installation incurred by the owner due to prejudice of the buyer, lack of standards against which the value of such improvements can be appraised, or simply lack of information regarding their value.[22] Therefore, subject to these limitations, the landowner may receive his accumulated costs representing future benefits, either by selling the farm or by waiting until the benefits materialize through increased income, thus reimbursing him for past costs. The tenant, however, owns no tangible property into which future benefits may be capitalized into present values.

This line of reasoning was summarized in the Trinity report in these words: "Tenants cannot be expected to cooperate in the program if they have to pay for any part of installation costs other than normally included in farm operation. As a result of the program, farm income may decline for a few

[22] Brown Rawlings, Jr., of the Bureau of Agricultural Economics, has pointed out an illustration of this qualification as follows, "In Ellis County, Texas, which is fairly typical of the Blackland in the Trinity, the land market survey shows that about 20 per cent of all land in farms in the county changed ownership in the period 1941 to 1944. This means that a large proportion of the landowners would have to receive their accumulated costs by selling at a price which would repay them for their improvements for soil conservation. This implies that such improvements have a widely recognized value, which we know is not true and which is pointed out explicitly in the discussion of the first major type of obstacle. To illustrate, an owner might build a pond, drill a well, or build a new barn, all of which are widely recognized as desirable and having value. When an owner sells this farm he may reasonably expect to be reimbursed for a portion of the past costs for such improvements. However, suppose this same owner builds terraces, sods to Bermuda grass (notice that practices are intentionally selected which farmers are quite often prejudiced against to make the point clearer) and then sells the farm. In a great many cases he may find that he will not be paid for any portion of these past costs simply because many farmers do not place any value on such improvements."

TABLE III. TENANT'S NET CUMULATIVE INCOME (EXCLUDING COST OF INSTALLATION) FROM PROPOSED EROSION CONTROL AND WATER RUN-OFF RETARDATION PROGRAM: TRINITY WATERSHED, SELECTED SIZE-TYPE FARM GROUPS IN MAJOR LAND USE AREAS*

Year From Initiation of Program	Net Income by Type and Size of Farms and Area				
	Row-crop farms small-sized West Cross Timbers	Row-crop farms medium-sized Grand Prairie	Row-crop farms medium-sized East Cross Timbers	Row-crop farms small-sized Blackland Prairie	Row-crop farms medium-sized Gulf Coastal Plain
	(dollars)	(dollars)	(dollars)	(dollars)	(dollars)
First	− 35	124	− 9	67	57
Second	− 72	255	− 19	138	117
Third	− 111	392	− 30	212	180
Fourth	− 152	536	− 41	290	246
Fifth	− 195	687	− 52	371	315
Sixth	− 151	1,223	211	588	679
Seventh	− 105	1,785	489	815	1,062
Eighth	− 57	2,376	779	1,054	1,463
Ninth	− 7	2,996	1,085	1,305	1,885
Tenth	46	3,647	1,405	1,569	2,328
Eleventh	101	4,331	1,742	1,845	2,793
Twelfth	160	5,049	2,095	2,135	3,281
Thirteenth	221	5,803	2,466	2,440	3,793
Fourteenth	285	6,594	2,856	2,760	4,331
Fifteenth	353	7,425	3,265	3,096	4,896

* Calculated on the basis of the share landlords and tenants furnish and receive under prevailing rental agreements.

years but will recover, and finally increase over present levels, in the end making land more remunerative to both landlords and tenants. However, even if tenants pay no part of the costs of the program, they will not gain during the early years in some areas, since they cannot capitalize future increases in income into present values to offset present losses, as can their landlord."[23]

Unless means are provided whereby the tenant may receive his original investment plus nominal returns thereon, one or both of two situations will come about: (1) he cannot be expected to cooperate in the program, or (2) the program is likely to result in an inequitable distribution of costs and benefits.

What Can Be Done?

The watershed surveys add to evidence presented in other studies that successful land improvement programs must include ways and means for overcoming obstacles growing out of our landed institutions. Physical structures that are made without remedying the basic institutional maladjustments giving rise to the need for improvements can result only in abortive efforts and a waste of funds. The task of overcoming obstacles rooted in our landed institutions is not easy, but it is essential in placing land improvements on a sound and lasting basis.

Measures designed to overcome institutional obstacles to land improvement should be conditioned by the five types of situations giving rise to obstacles discussed earlier. Since many institutional obstacles to land improvement grow directly out of customary practices, inertia to change, and ignorance of sound land use practices, education offers one important means for overcoming them. It seems reasonable to conclude that much greater progress has been registered in educating rural people concerning physical conditions than has been the case with regard to socio-economic conditions, even though the two types of conditions cannot logically be separated. All too frequently proposals for improvements in our landed institutions never get beyond the article or bulletin stage. Social scientists might do well to take lessons from physical scientists and select sample farms for demonstrating the advantages of better leasing practices, farm

[23] House Document No. 708, *op. cit.*, p. 55.

TABLE IV. PROPORTIONS OF TENANTS REMAINING ON SAME FARM FOR VARIOUS PERIODS BY MAJOR LAND USE AREAS OF TRINITY WATERSHED

Period	Percentage of Tenants Remaining on Same Farm					
	West Cross Timbers	Grand Prairie	East Cross Timbers	Gulf Coastal Plain	Blackland	Watershed Total
(years)						
1	80	84	84	81	85	83
2	60	68	68	63	71	67
3	47	54	54	50	60	55
4	39	44	44	40	50	44
5	32	36	36	32	42	36
6 – 9	14	18	18	15	22	18
10 and over	7	9	9	7	11	9

* Adapted from special tabulations of 1940 U. S. Census of Agriculture Data.

enlargement, and other means for overcoming institutional obstacles. In areas like the Trinity watershed where over half of the landowners do not live on their farms, special effort should be made to reach these absentee owners through special landlord extension activities and leasing schools held in cities where many landlords live.

Excellent channels for getting information to landowners and operators exist if only social scientists would devise ways of using them. Instead of considering the task completed with the bulletin or article summarizing results of research investigation, the social scientist must see that his conclusions are fairly and adequately applied in the world of actual events. The Extension Service, Smith-Hughes vocational and adult educational programs, AAA county and community committeemen and farm journals are a few of the several educational media available to students of our landed institutions. Along this same line, there is need for social scientists to put their thoughts into plainer language so that they can be more readily understood by the public.[24]

Regardless of how successful educational efforts may be in overcoming institutional obstacles, certain legislative measures are needed to bring a minority of landowners and operators into conformity with the best interests of the public. According to the federal constitution the source of this action traditionally resides largely in state and local governments. State and local governments have already made excellent starts in this direction in the fields of rural zoning, soil conservation and grazing districts, land management and forest development. However, in case of tenancy improvement, farm enlargement and related institutional fields, little or no progress has been made.

Examples of legislative action which have almost universal approval of research men include (1) automatic continuation from year to year of all agricultural leases unless notice for termination is served by either party not later than, say, 6 to 12 months before expiration date of lease, and (2) compensation for unexhausted value of the present tenant's specified improvements when he leaves the farm. These measures are already used by some leading landlords and tenants in this country, and have long been recognized as indispensable to tenancy systems in several foreign countries, particularly in England.

Much can be done in overcoming institutional obstacles through existing programs and agencies. For example, special efforts could be made particularly effective by land credit programs in helping to establish farmers on adequately-sized farms. Much could also be accomplished by supplying credit to farmers who have inadequate units for enlarging their present holdings. Soil conservation districts, in working out individual farm plans on tenant-operated farms, could develop a schedule of net cumulative year-by-year costs and unused benefits of the land improvement program for both landowner and tenant, such as the schedules contained in Tables II and III for selected groups of Trinity farms. These schedules could well be incorporated into leasing agreements—signed by the tenants, landowners, and districts—stipulating that landowners or incom-

[24] This viewpoint has been succinctly stated by L. J. Norton in his article "Agricultural Economists and Public Opinion," *Journal of Farm Economics*, February 1946, in these words, "Economic ideas also suffer in the mind of the public by often being stated in an elaborate and abstract form and in a vocabulary beyond the range of comprehension of many people including some professional economists. . . . There is no problem so complex that the answer cannot be stated in clear, simple language **that the ordinary man can understand. . . . To reach** the public with sound economic ideas the best scholars in the field must translate their ideas into simple understandable English." p. 308.

ing tenants compensate outgoing tenants for costs from which they do not receive full benefit before quitting the farms. Minimum leasing standards might well be added to the list of practices upon which soil-building payments are based.

Continuing research is needed to point out the manner and extent to which land improvements are handicapped by specific institutional forces within a particular area or a particular group of farms. Even though it is possible to generalize as to the nature of obstacles created by certain landed institutions, the watershed surveys clearly demonstrate the need for more refined analysis in differentiating particular situations. Much remains to be done in the way of refining analysis of institutional conditions and in sharpening the focus upon the nature and extend of obstructions to land resource improvement. Such studies should precede or be carried on concurrently with studies to determine needed physical improvements, in order that efforts may be directed at remedying these potent but invisible conditions.

There is also urgent need for bringing institutional and physical conditions into harmony with each other. This will require close collaboration between physical and social scientists. For example, one of the big difficulties faced when promoting compensation for improvements, in both leasing agreements and state legislation, is the lack of schedules containing cumulative costs and residual values of land improvement practices and structures. It remains extremely difficult if not impossible for social scientists to go ahead with compensation for improvement measures without cooperative working relationships with physical scientists in the development of year-by-year residual values of land improvement practices.

These four approaches to overcoming institutional obstacles—educational, legislative, administrative and research—are neither separate nor mutually exclusive in nature. Instead they necessarily complement each other. Research logically precedes educational, legislative, and administrative measures. However, research should be carried on also concomitantly with the other approaches so that results can be adequately evaluated. Research will aid in answering new problems that arise continually. Educational efforts should both precede and accompany legislative and administrative approaches. But legislative measures should be used to bring any recalcitrant minority into conformity with public interests and to fix limits within which individual choice has full play.

Financing Urban Redevelopment

By M. C. LUBAR*

THE primary objective of any practical urban redevelopment program must necessarily be the providing of housing for the lower- and middle-income groups. Unless such low-cost housing is provided, the displacement of the low-income occupants of existing blighted areas will create a problem which alone will probably prevent the execution of any comprehensive reclamation program, particularly in view of the housing shortage in most urban areas. The probable extent of this displacement problem is illustrated by a study of the rents paid by families in a typical blighted area in Detroit, which revealed that 80 per cent of the families paid less than $30 per month for rent (Table I).

The very magnitude of our urban blighted areas necessitates that redevelopment projects be designed primarily for the low- and middle-income groups. Detroit, for example, has some ten square miles of net residential areas in need of redevelopment. Even at relatively low densities, these areas could accommodate from 100,000 to 150,000 dwelling units. Of 430,000 families in Detroit in 1940, however, only 50,000 paid more than $50 per month for shelter. The potential market for the higher rental units, therefore, is considerably less than the volume of such housing which Detroit's blighted areas could accommodate. Furthermore, only a small proportion of the higher-income families would constitute a potential market for dwelling units in redevelopment projects inasmuch as the dwelling units they now occupy are, for the most part, satisfactory. Since Detroit is typical of most large cities in this respect, it is evident that our urban blighted areas must be redeveloped largely for those income groups who cannot afford to pay more than perhaps $50 per month for rent.

The need for low rents in redevelopment projects is equally clear from the standpoint of the private developer. High rents will not only restrict the size of the potential redevelopment program, but also will increase the risk in a field already complicated by difficulties of land assembly, high land costs, and governmental restrictions. In order to attract private capital to this field, redevelopment projects must be made as attractive, from the investment standpoint, as conventional projects on vacant land. The accomplishment of this objective necessitates low rents since the lower the occupancy cost, the less will be the risk involved and, consequently, the more attractive will be the investment, other things remaining equal.

TABLE I. ESTIMATED PERCENTAGE DISTRIBUTION OF FAMILIES IN A TYPICAL BLIGHTED AREA BY MONTHLY RENT PAID: DETROIT, 1940

Monthly Rent	Per Cent Distribution
Total	*100.0*
Under $10	0.3
$10 – 14	4.4
15 – 19	14.7
20 – 24	25.8
25 – 29	34.7
30 – 39	16.8
40 – 49	2.5
50 and over	0.8

Source: Detroit City Plan Commission.

Housing Occupancy Costs

Basically, the cost of occupying a dwelling unit is the sum of the charges for maintenance, taxes, financing, and vacancy. These charges are illustrated in

*New York City. Some of the material incorporated into this article was presented before the annual meeting of the American Society of Civil Engineers in January 1946.

Table II which presents an operating statement for a typical urban redevelopment project constructed under present conditions by private enterprise without any governmental assistance. The required monthly rental is found to be $22.39 per room, or almost $90 for a 4-room unit, which obviously is beyond the reach of over 95 per cent of our urban families. If this required rental is to be reduced to a more feasible level, one or more of the component charges which it represents must be substantially decreased. A brief review of these cost elements, indicating their relative susceptibility to reduction, follows:

Maintenance. Maintenance expense depends largely upon the cost of labor and materials, assuming reasonable efficiency in design and operation. Although maintenance charges constitute a major cost factor—$4.58 per room per month in the illustrative project—they are largely unsusceptible to any substantial reduction inasmuch as labor and material costs are largely beyond the control of the operator. Under present conditions, maintenance costs, including a reserve for replacements, probably cannot be reduced materially below $55 per room per year in redevelopment projects located in northern metropolitan areas.

Taxes. Assuming a tax rate of 3 per cent and an assessed valuation of approximately $1400 per room, real estate taxes aggregate $3.64 per room per month. Since the amount of taxes to be levied on any property is within the control of the local government, one method for effecting a reduction in occupancy costs obviously lies in tax abatement. In fact, tax abatement probably affords the most readily available means for municipalities to assist in reducing rents in redevelopment projects. Although the granting of this benefit may result in either a decline in municipal revenues or, as is more likely, a slight increase in the tax rate, the fact remains that unless some tax exemption is granted to redevelopment projects, practically no urban redevelopment will be accomplished under any existing or proposed law.[1] Without such tax exemption, rents in privately-owned redevelopment projects cannot be brought within the reach of the lower- and middle-income groups by any presently available means. In the illustrative project, for example, full taxes of $3.64 plus $4.58 for maintenance totals over $8 per room per month before adding the costs of financing and vacancy losses.

Most redevelopment projects could feasibly pay taxes in an amount equal to the taxes levied against the project area prior to its redevelopment. In the illustrative project, for example, this payment would amount to $240,000 a year or $0.91 per room per month. By freezing the tax in this way, the city would continue to receive a fixed revenue from the area as contrasted with the undoubted decline in revenue which would occur if the area were not redeveloped. As a result of the redevelopment of the blighted area, furthermore, certain municipal costs probably would be reduced —thereby offsetting, at least in part, the cost of the tax abatement. Additionally, unless our blighted areas are redeveloped urban population probably will continue to decentralize, thereby causing a further shrinkage in municipal tax bases.

Financing. To finance the total project cost of $42,000,000, it has been assumed that $29,400,000 is derived from a mortgage and that $12,600,000 is provided as equity capital by the developers. This division approximates the conventional financing of private housing development where the mortgage funds are furnished by an insurance company

[1] Including the Wagner-Ellender Bill.

or other financial institution.

It is further assumed that the interest rate on the mortgage is 4 per cent while the return required on the equity capital is 9 per cent. The average required rate of return on the total invested capital, therefore, is 5½ per cent. Both the mortgage and the equity investment are assumed to be retired through a level payment plan with a 2 per cent amortization payment in the first year. On this basis, the mortgage and equity investment would be retired in approximately 30 years and 20 years respectively.

Considered on an overall basis, the amount of the financial charges depends upon (1) the cost of the project, (2) the required rate of return, and (3) the amortization schedule.

(1) Cost of Project

The total project cost comprises (a) the cost of the land and site improvements, and (b) the cost of the construction and carrying charges. It is useful to analyze these costs separately in order to evaluate their individual effect upon the required room rental.

(a) Land Cost. In the illustrative project, the land and site improvements are assumed to cost $12,000,000, an average of $3 per square foot or $550 per room. To yield a return of 5½ per cent on this investment and to amortize it in the required period, $3.41 per room per month is required. Assuming that 70 per cent of the total land and site improvement cost is financed from the proceeds of the mortgage with the balance being financed by equity capital, the breakdown of this charge is as follows:

	Annual	Per room per mo.
Servicing of $8,400,000 mortgage debt		
Interest	$ 336,000	$ 1.27
Amortization	168,000	.63
	$504,000	$ 1.90
Servicing of $3,600,000 equity investment		
Return	$ 324,000	$ 1.23
Retirement	72,000	.28
	$ 396,000	$ 1.51
TOTAL	$ 900,000	$ 3.41

Since suitable vacant land with utilities already installed can generally be purchased for $.50 per square foot or less, it is evident that the excessive cost of land in blighted areas increases the required rental by approximately $3 per room per month in the illustrative project. High land costs are, of course, a well-recognized obstacle to urban redevelopment. Practical means for minimizing the effect of high land costs on rentals are suggested in the following section.

(b) Construction Cost. The total cost of the construction and carrying charges in the illustrative project is assumed to be $30,000,000 or $1500 per room. To provide the required rate of return on, and amortization of, this amount, a monthly charge of $8.53 per room would be required, made up as follows:

	Annual	Per room per mo.
Servicing of $21,000,000 mortgage debt		
Interest	$ $840,000	$ 3.19
Amortization	420,000	1.59
	$ 1,260,000	$ 4.78
Servicing of $9,000,000 equity investment		
Return	$ 810,000	$ 3.07
Retirement	180,000	.68
	$ 990,000	$ 3.75
TOTAL	$ 2,250,000	$ 8.53

The cost of construction depends largely upon the cost of labor and materials, over which the developer has little control. Consequently, opportunities for reducing the financial charges on the investment in the project must be sought in either a reduction in the required rate of return or in an extension of the amortization period.

(2) Required Rate of Return

The amount required to provide the average return of 5½ per cent in the illustrative project is $8.76 per room per month. Given the cost of the project, the size of this charge will depend upon (a) the required rates of interest on the mortgage and return on the equity, and (b) the relative proportions of mortgage and equity financing involved.

(a) Mortgage Interest and Equity Return. In the illustrative project, the 4 per cent interest on the mortgage and the 9 per cent return on the equity cost $4.46 and $4.30 per room per month,[2] respectively. The cost of the money used to finance the project, therefore, represents almost 40 per cent of the total required rental. Obviously, one means for substantially reducing occupancy costs lies in decreasing the rates of mortgage interest and equity return. These rates will depend largely upon prevailing money, market conditions, the relative safety and liquidity of the particular investment, and the tax status of the income.

A basic objective of any practical program for financing urban redevelopment should be the development of means for reducing the cost of money for development projects. To accomplish this objective, investments in urban redevelopment projects must be given a degree of safety and liquidity approaching that of federal bonds. Further reductions in the cost of financing urban redevelopment can be effected by exempting the interest on these obligations from federal income taxes. Practical means for accomplishing these objectives under existing legislation are discussed in a subsequent section. The utilization of these means would permit at least a 50-per-cent reduction in the required rate of return in the illustrative project, thereby effecting a saving of over $4 per room per month.

(b) The Proportions of Mortgage and Equity Financing. Inasmuch as equity capital will demand a higher rate of return and a shorter amortization period than mortgage funds, any means for decreasing the proportion of equity financing will obviously reduce the required average rate of return. For example, a project with 70 per cent mortgage carrying a 4-per-cent interest rate and a 30-per-cent equity investment with a 9-per-cent return requires an average overall return of 5½ per cent. By contrast, a project with a 90-per-cent mortgage and 10 per cent equity investment would have an average return of 4½ per cent

TABLE II. PROJECT DETAILS AND OPERATING STATEMENT FOR A TYPICAL UNAIDED REDEVELOPMENT PROJECT

Project Details

Site area	100 acres
Number of rooms	22,000
Number of dwelling units	5,000
Development cost	
Land acquisition	$ 8,500,000
Site improvements	3,500,000
Construction*	30,000,000
TOTAL	$ 42,000,000
Financing	
Mortgage—4% interest, 30 year amortization	$ 29,400,000
Equity investment—9% return, 20 year retirement	$ 12,600,000
Tax rate	3 per cent
Assessed valuation	
At time of acquisition	$ 8,000,000
After redevelopment	$ 32,000,000
Maintenance cost per room per year	$ 55
Vacancy Loss	10 per cent

Operating Statement

	Annual	*Per Month Per Room*
Maintenance	$ 1,210,000	$ 4.58
Taxes	960,000	3.64
Mortgage debt service		
Interest	1,176,000	4.46
Amortization	588,000	2.23
Equity Investment		
Return	1,134,000	4.30
Retirement	252,000	.94
Vacancy Loss	591,000	2.24
Total rental required	$ 5,911,000	$22.39

* Includes interest and taxes during construction, financing and organization costs, and other carrying charges.

[2] During the first year.

without changing the yield on either investment. Translated into monthly charges, this reduction in the cost of money would effect a saving of approximately $1.70 per room per month in the illustrative project. The inference here, therefore, is that means be sought for maximizing the proportion of mortgage financing in redevelopment projects. This would have the further effect of enabling the equity funds available for investment in urban development to finance a greater number of projects.

(3) Amortization

Assuming a level payment plan, the monthly cost of amortizing the mortgage on, and the equity investment in, the illustrative project is $5.40 per room for the first year. The size of this charge depends, of course, upon the cost of the project and the period of amortization. Although a reduction in this charge could be effected by lengthening the amortization period, this saving probably would be largely offset by a concomitant increase in the required rates of interest and equity return. In practice, therefore, it appears that only a relatively small reduction in the cost of occupancy can be effected by extending the amortization beyond the periods assumed for the illustrative project.

Vacancy Loss. The 10 per cent allowance for vacancy amounts to $2.24 per room per month in the illustrative project. The cost of vacancy depends upon (a) the proportion of vacant units and (b) the cost of carrying these vacant units. Obviously, the lower the required rents, the lower will be the cost of carrying the vacant units. Any decrease in the cost of vacancies, therefore, must be preceded by a reduction in the other costs of housing occupancy.

Conclusion: The foregoing discussion suggests that reductions in the costs of occupancy in redevelopment projects are most likely to be effected by developing means for decreasing (1) real estate taxes, (2) the cost of financing land acquisition, (3) mortgage interest, and (4) the return on the equity investment.

Existing Legislative Means for Reducing Occupancy Costs

Practical means for effecting the aforementioned reductions in the occupancy costs of redevelopment projects are available in existing state and federal laws, particularly in the former. The state laws, which provide the most immediate opportunity for initiating redevelopment programs, comprise the municipal housing authority laws and the urban redevelopment corporation laws.

Some 38 states have enacted legislation authorizing the creation of local public housing authorities which are empowered to clear blighted areas and provide housing for low income groups. To effectuate these purposes, local housing authorities are authorized to acquire land by condemnation or other means and to construct or acquire housing projects. To finance these operations, housing authorities are permitted to issue revenue bonds. The principal and interest payments on these bonds are exempted from federal and state income taxes. Except in Ohio and Missouri, projects owned by housing authorities are granted exemptions from the payment of local real property taxes. Municipal housing authority laws, therefore, provide one means for effecting considerable reductions in the cost of housing occupancy through (1) the abatement of real estate taxes, (2) the lowering of the required rates of mortgage interest and equity return owing to the exemp-

tion of housing authority securities from income taxation, and (3) the reduction in the cost of vacancy as a result of the foregoing.

(1) Real Property Taxes. State municipal housing authority laws authorize municipalities to exempt projects of local housing authorities from local real property taxes. Payments in lieu of taxes are usually authorized in an amount equal to the taxes levied against the property in the project site at the time of its acquisition by the housing authority. Thus, if the assessed valuation of the property in the illustrative project site were $8,000,000 at the time of its acqusition, payments in lieu of taxes by the authority would not exceed the amount of taxes paid on this valuation at the tax rate in effect at the time of acquisition. By contrast, if this were an unaided private project, taxes would be paid on an assessed valuation of approximately $30,000,000. If the illustrative project were owned by a local housing authority, the payments in lieu of taxes probably would not exceed $240,000 annually. For an identical unaided private project, the taxes would be $960,000. On a monthly basis, the respective costs per room would be $.90 and $3.64, a difference of $2.73.

(2) Mortgage Interest and Equity Return. Since the securities of local housing authorities are exempt from federal and state income taxes, they naturally carry a lower coupon than comparable securities of a private corporation. Housing authority securities, furthermore, are well known to purchasers of securities and have ready market. As a result, the interest rate on housing authority mortgages would probably be less than 2 per cent as compared with perhaps 4 per cent for a private corporation's mortgage.

The same considerations would apply to the equity securities. Since housing authorities are required to operate on a non-profit basis, furthermore, the required return on the equity investment would be considerably less than that obtaining for a comparable investment of a private corporation. Thus, the required rate of return for an equity security of a housing authority might be 4 per cent or less as compared with 9 per cent for a private corporation.

(3) Vacancy Loss. As a result of the foregoing savings, the cost of vacancies will decrease owing to a lower vacancy ratio and a lower cost of carrying the vacant units. At the lower rentals possible for a housing authority project, the vacancy cost probably would not exceed 6 per cent of the total revenue or $.90 per room per month as compared with $2.34 in a comparable private project.

In summary, therefore, savings of $7.46 per room per month could be effected by having the illustrative project owned and operated by a local housing authority, rather than by an unaided redevelopment corporation (see Table III). As a result of these savings, the required rent in the illustrative project could be reduced to $14.93 per room per month.

Other Means for Reducing Costs. In addition to the foregoing, further means are available for reducing the required rental to $11.50 per room per month or less. Among these means are the following:

(a) Term Bonds. Without impairing their marketability, housing authority or municipal revenue bonds issued to finance the land acquisition and site improvement costs could be so drawn as to defer amortization payments until the other securities issued to finance the

particular project had been retired. As compared with conventional financing, these bonds would reduce the annual fixed charges on the land investment by almost 75 per cent. In the illustrative unaided private project, for example, these charges amount to 7½ per cent of the initial cost of land acquisition and site improvements of $900,000 annually. By contrast, the use of deferred amortization revenue bonds of a municipality or housing authority would reduce this charge to 2 per cent or $240,000 annually. On a monthly basis, the cost per room would thereby be decreased from $3.31 to $.91. In effect, therefore, this method of financing results in a saving which is equivalent to reducing the land cost from $3 to $.75 per square foot.

(b) Decreasing Equity Financing. Since the Federal Housing Administration is authorized to insure mortgages in an amount up to 80 per cent of the appraised value of a rental housing[3] project, the issuance of this insurance permits the proportion of equity capital to be reduced to 20 per cent of the total project cost. Although the mortgage insurance would cost ½ of 1 per cent annually on the outstanding mortgage amount, this charge probably would be offset by a reduction in the overall rate of return required owing to (1) the decrease in the proportion of high cost equity capital, and (2) the reduction in the interest rate resulting from the government guarantee of the mortgage.

(c) Supplementary Income. The income from the leasing of stores and garages and from the submetering of utilities can provide as much as 15 per cent of the total revenues of a project. By utilizing this income to decrease the required rentals, a substantial reduction can be made in the room rentals.

The financial details of an actual proposal for a redevelopment project in Chicago under the Illinois Housing Authorities Act, showing the effect of the aforementioned means of effecting savings in occupancy costs, is presented in Table IV. As this proposal indicates, the utilization of all available means for reducing the costs of housing occupancy permits an average rental of $10.50 per room per month to be attained despite high construction costs, and land acquisition and site improvement costs of $3 per square foot.

In addition to providing the means for reducing rents, municipal housing authority laws offer another important advantage. Housing authorities may construct projects on vacant land thereby permitting rents to be reduced to $9 per room per month and possibly less.

TABLE III. COMPARATIVE OPERATING STATEMENTS FOR IDENTICAL UNAIDED PRIVATE AND HOUSING AUTHORITY PROJECTS.

Project Details

For unaided private project, same as in Table II

For housing authority project, same as in Table II except for the following:

Assessed valuation after redevelopment	$ 8,000,000
Mortgage interest rate	2 per cent
Equity return	4 per cent
Vacancy loss	6 per cent

Operating Statement

	Cost per room per month		
	Unaided Private Project	Housing Authority Project	Difference
Maintenance	$ 4.58	$ 4.58	.....
Taxes	3.64	.91	$ 2.73
Mortgage debt service*	6.69	5.02	1.67
Equity investment**	5.24	3.52	1.72
Vacancy loss	2.24	.90	1.34
Rental	$ 22.39	$ 14.93	$7.46

* For a 30-year amortization, the level annual payment approximates 6 per cent of the initial mortgage amount for the private project and 4½ per cent for the housing authority project.

** For a 20-year amortization, the level annual payment approximates 11 per cent of the initial equity investment for the private project and 7½ per cent for the housing authority project.

[3] But not to exceed $1350 per room for that portion attributable to residential use.

TABLE IV.—Details of a Redevelopment Project Proposed for the City of Chicago Under the Illinois State Housing Law.

Project Details

Gross land area	320 acres
Number of residential rooms	58,476
Number of dwelling units	12,955
Average monthly room rent	$10.50
Store frontage	5,800 feet
Garage Spaces	3,300
Present assessed valuation	$ 9,600,000
Tax Rate	3.9 per cent

Financial Requirements

Land Acquisition	$ 20,908,800
Site Improvements	8,900,000
Construction	89,244,000
Carrying Charges and working capital	5,770,384
Total Requirements	$124,823,184

Sources of Financing

The total financial requirements of $124,823,184 would be met as follows:

(1) Cost of land acquisition and site improvements to be financed through the sale of Class A revenue term bonds of the Chicago Housing Authority. These will be term bonds to be retired out of surplus 30 years after issuance	$ 29,808,800
(2) Mortgage bonds insured by the Federal Housing Administration (Class B revenue serial bonds)	85,000,000
(3) Equity furnished by private development corporation (Class C income bonds)	10,014,384
Total	$124,823,184

Operating Statement

Income		
58,476 rooms at $10.50 per month		$ 7,367,976
5,800 feet of stores at $100 per front foot		580,000
3,300 garage spaces at $10 per month		396,000
Dwelling electric submetering at $5 per room per year		292,380
Store electric submetering at $10 per foot per year		58,000
Gross Rental Expectancy		$ 8,694,356
Less: Vacancy loss		
Dwelling	$229,811	
Non-dwelling	103,400	333,211
Net Rental Expectancy		$ 8,361,145
Operating Expenses		
Taxes	$ 374,400	
Maintenance	2,806,848	3,181,248
Cash available for debt service		$ 5,179,897
Debt Service		
Class A term bonds		
Interest—2%	$ 596,176	
Class B serial bonds		
Interest—2½%	2,125,000	
Amortization 1%	850,000	
FHA Mortgage Insurance ½%	425,000	
Class C Income bonds		
Interest—5%	500,719	4,496,895
Surplus available for reserves and amortization		$ 683,002

With a graduated rent schedule, units can be provided at rents below this average. In this way, a substantial proportion of the low-income persons displaced by redevelopment projects can be rehoused.

Municipal housing authority laws provide the means, therefore, whereby cities in some 38 states can immediately initiate redevelopment programs which will provide housing at $10.50 or less per room per month and minimize the displacement problem. In order to undertake such programs, however, the housing authorities or municipalities must obtain the funds for the underlying equity investment without which the mortgage funds will be unavailable.

Providing the Equity Capital. Few housing authorities, if any, have the funds required for the equity position on the basis of which mortgage money can be obtained to finance housing projects without federal subsidies. There is a plan, however, under which the necessary equity capital can be furnished to the housing authority from private sources. Under this plan, the local housing authority would contract with a private company for the purchase of a redevelopment project including the land. The entire price therefor would be paid in revenue bonds of the authority. These bonds would be secured only by a lien on the project. Neither the housing authority nor the municipality would be required to guarantee these bonds or to pledge their faith and credit in any way. The private company undertaking to deliver the project to the authority would agree to furnish the underlying equity funds. This equity investment would be repaid to the private company out of the revenues of the project after all prior lien securities had been serviced.

Under this plan, the housing authorities and municipalities in the 38 states having adequate laws could initiate redevelopment programs without having either to expend any of their own funds or to pledge their faith and credit. Since this plan requires no additional legislation, it could be put into execution immediately.

The procedure under this plan can be illustrated with the project described in Table II. After approval of the plans and specifications, the local housing authority would contract for the purchase of this project for $42,000,000. The site would be acquired by the housing authority through purchase, condemnation, or other means. Funds for this purpose would be provided by the private company in return for housing authority revenue bonds which would be secured only by a lien on the land acquired.

After the site had been assembled, the private company would construct the project and, upon completion, convey it to the housing authority, which would thereafter own and operate it. In payment therefor, the housing authority would issue $34,000,000 of revenue bonds and $8,000,000 of income bonds to the private company. The revenue bonds would be secured only by a lien on the project and would require no pledge of the faith or credit of either the housing authority or the municipality. The income bonds would represent the equity investment provided by the private company and would be secured only by a lien against the income of the project after all other obligations had been met. Payments of interest and amortization of the income bonds would be made solely out of the revenues of the project, when and as earned. In the event of default, however, the income bondhold-

TABLE V.—Details of a Redevelopment Project for New York City Under the New York State Redevelopment Companies Law

Project Details		
Gross land area		233 acres
Number of residential rooms		54,080
Number of dwelling units		12,998
Average monthly room rent		$11.75
Store frontage		5,000 feet
Garage spaces		4,000
Present assessed valuation		$ 9,250,000
Tax rate		3 per cent
Financial Requirements		
Land Acquisition		$ 9,840,000
Site Improvements		5,676,000
Construction		77,097,684
Carrying Charges and working capital		5,632,410
Total Requirements		$ 98,246,094
Sources of Financing		
The total financial requirements of $98,246,094 would be met as follows:		
(1) Cost of land acquisition and site improvements		$ 15,516,000
To be financed either by a loan to the city from the State Commissioner of Housing or by the issuance of a city revenue bond. An annual rental would be paid by the redevelopment company to the city in an amount sufficient to retire this obligation in 50 years.		
(2) Mortgage bonds insured by the Federal Housing Administration		72,000,000
(3) Equity furnished by development corporation (capital stock)		10,730,094
Total		$ 98,246,094
Operating Statement		
Income		
54,080 rooms at $11.75 per month		$ 7,625,280
5,000 feet of stores at $200 per front foot		1,000,000
4,000 garage spaces at $10 per month		480,000
Dwelling electric submetering at $5 per room per year		270,400
Stores electric submetering at $20 per foot per year		100,000
Gross Rental Expectancy		$ 9,475,680
Loss: Vacancy Loss—5 per cent		473,784
Net Rental Expectancy		$ 9,001,896
Operating Expenses		
Taxes	277,200	
Maintenance	2,704,000	2,981,200
Cash available for debt service		$ 6,020,696
Debt Service		
Land Bonds		
Interest 2%	310,320	
Amortization 1%	155,160	
Mortgage Bonds		
Interest 3%	2,160,000	
Amortization 1½%	1,080,000	
FHA Mortgage insurance ½%	360,000	4,065,480
		$ 1,955,216
Dividends on capital stock—6%		643,808
Surplus available for reserves and amortization		$ 1,311,410

ers, unlike the revenue bondholders, would have no right of foreclosure.

State and Urban Redevelopment Corporation Laws

Some 20 states have enacted legislation purportedly designed to enable private enterprise to engage in urban redevelopment. With only five exceptions, however, these laws fail to provide any practical means for accomplishing this objective. In particular, they afford no means by which private enterprise can effect the reductions in the costs of housing occupancy which are prerequisite to any extensive redevelopment program. Generally, the only benefit they accord private developers is assistance in land assembly.

Under the urban redevelopment laws of New York, New Jersey, Massachusetts, Wisconsin, and Missouri, however, municipalities are authorized to exempt redevelopment projects from local taxes. This benefit, together with the application of other cost-reducing procedures including the issuance of municipal revenue bonds to finance the cost of land acquisition and site improvements and the development of non-residential sources of revenues, permits required room rents to be reduced to $11.75 per month or less. Table V presents the details of a project proposed in New York City under the New York Redevelopment Companies Law.

Existing redevelopment corporation laws, however, provide no method for accommodating displaced occupants. In many cases, this problem can be overcome by first redeveloping those blighted areas suitable for residential purposes which are predominantly non-residential in character. Other possibilities include the granting of priorities to displaced persons for the occupancy of available housing and the construction of projects in vacant areas under municipal housing authority laws prior to the clearance of blighted areas for redevelopment.

In five states, therefore, urban redevelopment corporation laws provide some of the implementation necessary to make the reconstruction of blighted areas by private enterprise an economically feasible undertaking. As a practical matter, the extent to which this legislation will be utilized depends largely upon the encouragement and cooperation given private developers by the local officials responsible for administering these laws.

Additional Legislation Required

To encourage and promote urban redevelopment, the enactment of a broad program of state and federal legislation is required. The objectives of this legislation should include the providing of means for (1) effecting reductions in the costs of housing occupancy, (2) rehousing displaced occupants of low income, and (3) encouraging private capital to enter the field of urban redevelopment.

State Legislation. In order to achieve the foregoing objectives, state legislation should be enacted to provide for:

(a) Exemption of redevelopment projects from local real estate taxes.

(b) Exemption of the securities of redevelopment corporations from income taxes.[4]

(c) Authorization for municipalities to acquire and to sell or lease land in blighted areas for redevelopment.

(d) Authorization for municipalities to

[4] Article IX of the New York Public Housing Law, which provides for the creation of private housing companies (which are similar to urban redevelopment corporations) declares the bonds, mortgages, and income debentures of such housing companies to be instrumentalities of the state, issued for public purposes and, consequently, exempt from income taxation.

issue revenue and general obligation bonds for the purpose of assisting in the redevelopment of blighted areas, such assistance to include the acquiring of land, the furnishing of public facilities, and the making of loans to redevelopment corporations and housing authorities,[5] particularly for the purpose of rehousing displaced occupants of low income.

(e) Authorization for municipalities to guarantee the principal of and interest on any indebtedness contracted by redevelopment corporations or housing authorities.

(f) Authorization for the state to make loans and grant subsidies to municipalities, housing authorities, and redevelopment corporations for urban redevelopment purposes.

(g) Extension of all benefits granted to redevelopment projects to projects built on vacant land for the rehousing of displaced persons of low income.

(h) Relaxation of the restrictions on savings banks, insurance companies and other fiduciaries on the investment of their funds in the securities of redevelopment corporations.

(i) Expansion of the concept of urban redevelopment to include the preventing and arresting of blight as well as the reclaiming of vacant and near vacant areas incapable of adequate development without the assistance of the municipality in assembling the land or otherwise.

Federal Legislation

To promote urban redevelopment, future federal legislation, like state legislation, should provide means for (1) reducing the costs of housing occupancy, (2) rehousing displaced persons of low income, and (3) encouraging private capital to enter the field. The following is an outline of some suggested provisions of such legislation:

(a) Authorization for loans, grants and subsidies to municipalities, local housing authorities and private groups for the purpose of providing housing for persons of low income, particularly for those displaced by redevelopment projects.

(b) Authorization for loans to municipalities to enable them to acquire and then lease or sell land for redevelopment purposes, including vacant land needed for the rehousing of displaced persons of low income.

(c) Exemption of the securities of redevelopment corporations from income taxation, provided they are regulated with respect to financial structure, rents, dividends and other aspects of operation.

(d) Authorization for the Federal Housing Administration to insure mortgages on redevelopment projects up to 85 or 90 per cent of their appraised value.

(e) Authorization for the Federal Housing Administration to increase the amount of insurable mortgage per room on redevelopment projects to take into consideration the high cost of land in blighted areas. At present, the maximum amount of mortgage which the Federal Housing Administration may insure is $1350 per room. Since land and site improvements generally are expected to cost from $400 to $800 per room in redevelopment projects, and since present construction costs will approximate $1500 per room in a typical project, it is evident that the maximum insurable mortgage comprises only from 60 to 70 per cent of the total cost. An increase in the proportionate amount of the mortgage from 60 per cent to 80 per cent would double the amount of redevelopment possible with a given amount of equity capital.

Conclusion

The foregoing outlines of suggested provisions of state and federal legislation are by no means complete. No mention has been made, for example, of legislative provisions relating to the integration of urban redevelopment with community planning, criteria for the designation of blighted areas, methods of land assembly, the regulation of redevelopment corporations, or the administration of urban redevelopment corporation laws. The proposals outlined necessarily constitute only a small part of the legislative program needed to implement urban redevelopment programs.

[5] See Article XVIII of the New York State Constitution.

It should be emphasized, however, that the redevelopment of blighted areas in most cities need not await additional legislation. The practical means for immediately initiating redevelopment programs are available in most states. The responsibility for developing and executing these programs rests largely with local officials. Unless these officials recognize their responsibility and utilize the existing legislation available to them, urban redevelopment will continue to receive more academic discussion than constructive action.

Allocating Demand Costs

By J. A. NORDIN*

THERE are two objectives in allocating an electric power plant's demand costs among its customers. The first is to improve the system consumption pattern, and the second is to do justice among customers.

For most plants the system pattern would be improved by becoming more nearly level. The optimum extent of leveling varies among plants, partly because provision has already been made for using obsolete equipment during peak periods; but it is extremely unlikely that any rate schedule would actually make a plant's pattern too level. The first objective may be stated as that of leveling the station consumption pattern, but it should be remembered that a perfectly level pattern probably cannot be attained and is not necessary, if there is reserve capacity.

Since leveling the pattern means leveling it over a series of hours, it is plausible that demand cost rates should be determined for individual hours — not for individual patterns. The object is to move consumption from the peak hours to the trough hours; consequently it must be made relatively expensive to consume at the peak hours and relatively cheap to consume at the trough hours.

The fact that low rates are sometimes given for level individual patterns and also for those permitting diversity suggests that the individual pattern is irrelevant in itself. Its influence is exerted on the system only through its individual hourly demands. An extra unit of demand at the peak is inconvenient—the degree of inconvenience is independent of the shape of the individual pattern to which it belongs.

It would be easy to overestimate the effectiveness of rate changes in reshaping individual patterns. Ideally every enterprise is so delicately balanced that a change in any of its costs will move its planned operations to a new equilibrium; but actually there are formidable rigidities. In a community where Sunday work is uncommon, for instance, many firms may not feel free to initiate continuous production. There are similar difficulties in changing residential patterns. Many station patterns would be improved if customers ate their heaviest meals in the evening during the summer and at noon during the winter; but family eating habits could not be changed easily by manipulating the rate schedule.

Nevertheless, the individual patterns can be modified marginally in many cases. The rate schedule may be critical in deciding between overtime work and plant expansion. The advisability of adding shifts may change when the rate schedule is changed. Correctness of rate schedules is particularly important when a new industrial customer is about to choose a location for his factory. A power plant whose peak period rates are not high is soliciting unprofitable business; one whose slack period rates are high is not soliciting profitable business as intensively as it might.

Whatever the extent to which individual patterns are determined by the rate schedule, the influence of the schedule should be directed toward inducing customers to move consumption from

*Iowa State College.

the station peaks to the station troughs. *Therefore, hourly demand cost rates should vary directly with the amount of the hourly demand.*

In assessing charges for demand costs, justice among customers must be thought of in terms of the fairness of hourly charges. If the consumption of a given hour can fairly be assigned a low rate, every customer at that hour can fairly be charged a low rate for his consumption at that hour. If the charge against a customer is fair for each hour of his consumption, the total charge against him is also fair. Thus justice among customers means justice among hours.

Justice among hours requires that each hour be charged with the capacity cost for which it can reasonably be considered responsible. In what follows there is a method of allocating responsibility for capacity costs. It is argued that this method is fair and also conduces to improving the system pattern. Finally, alternative methods are considered.

In Figure 1 the subdivision of time will be referred to as an hour, although

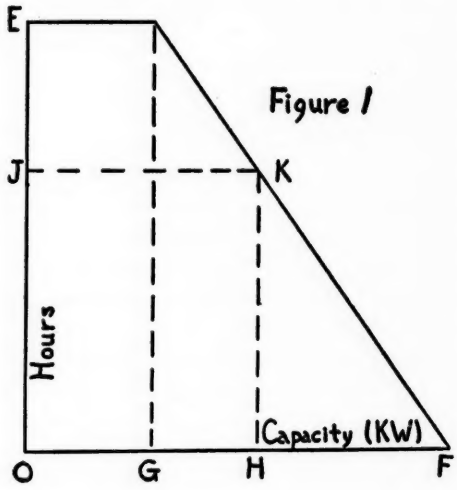


Figure 1

drawing a continuous curve necessitates thinking of the time subdivision as being very small. "Capacity" is to be understood as fixed equipment used in production, and it is to be measured in terms of the number of KW of demand that can be satisfied. Let the maximum capacity OF be divided into small increments. Let the increments used for the largest number of hours be placed nearest the origin. It is important to note that HK is the number of hours during which the OHth increment is used—it is not the number of hours during which exactly the total capacity OH is used. OG is the minimum capacity used. If the hours are arranged in decreasing order of capacity used, as is indicated, then JK is the capacity used at the OJth hour.

Figure 2 shows marginal and average costs of capacity. The phrase "costs of capacity" is to be interpreted in conformance with the above definition of capacity; the total cost of a capacity is the cost per production period of the fixed equipment used in satisfying the demand stated as a measure of the given capacity. The average curve is obtained by dividing each total cost figure by the corresponding capacity. The marginal curve shows the addition to total cost occasioned by each increment of capacity. It is assumed in drawing Figure 2 that economies of scale operate on the range OM, and that diseconomies of scale operate on the range MF. All increments lying to the left of a given increment will be said to precede it, and all lying to the right will be said to follow it.

An outline of the method to be used is as follows. A cost is to be assessed against each capacity increment. That cost is to be divided equally among all

the hours at which the given increment of capacity is used. The total charge for an hour is to be the sum of its shares in the costs assessed against the capacity increments used during the given hour. Finally, the hourly demand cost rate is to be obtained by dividing the hour's total charge by the consumption at that hour.

The assessment of increments is to follow this rule: All increments from the origin to the point of minimum average cost of capacity (the point M in Figure 2) are to be assessed at the minimum average cost of capacity (MP in Figure 2). All increments to the right of the minimum average cost point are to be assessed at their own marginal costs. The assessments are shown on Curve 1 of Figure 3.

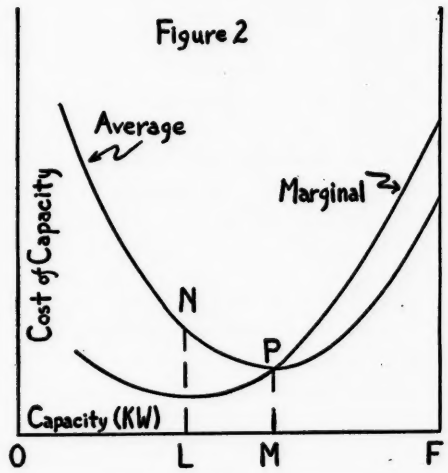


Figure 2

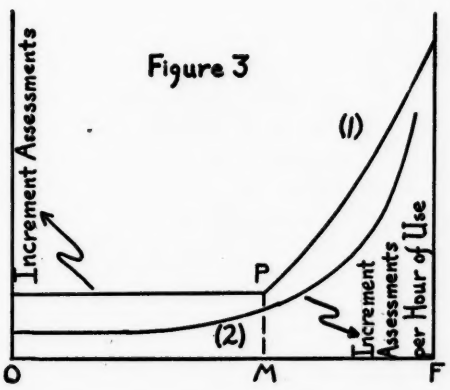


Figure 3

The argument for this rule is as follows: Tentatively let each increment be assessed at its own marginal cost. Let A be an increment with relatively low cost, and B an increment or group of increments with relatively high cost. Then B may fairly claim equality of treatment with A if the existence of B is necessary for the existence of the low cost of A. Suppose A lies to the left of L (the point of minimum marginal cost). Then every increment preceding A can claim equality of treatment with A; for, if any one of them were withdrawn, the marginal cost of A would rise. Therefore, let all increments on OL tentatively be assessed at LN, their group average.

Suppose next that A is located just to the right of L. Then it has temporarily an assessment less than the assessments of all preceding increments. But those preceding increments constitute a group B that can claim equality of treatment with A, since the existence of the group B is necessary for the relatively low cost of A. This procedure can be repeated for all the increments from L to M, the marginal cost of each of them being compared with the average cost directly above it. No increment from L to M can claim preference over the group consisting of all increments preceding it; the relative lowness of any marginal cost depends on the existence of all the increments that precede it. Therefore all increments on OM should be assessed tentatively at MP.

If now the increments on MF are

assessed at their marginal costs, the argument advanced for altering assessments can be applied no further. On Curve 1 of Figure 3, the increments on OM have lower assessments than those on MF; but there is no increment or group of increments on MF whose existence is necessary to the relatively low marginal cost of the group on OM. Thus Curve 1 of Figure 3 shows the final assessments.

Curve 2 of Figure 3 shows the assessment per hour of use for each increment.[1] The curve is obtained by dividing the assessment for each increment by the number of hours during which that increment is used, as shown in Figure 1.

It will be recalled that Figure 1 can be used to show the total capacity at each hour, if the hours are thought of as being arranged in decreasing order of capacity used. But for convenience Curve 1 of Figure 4 shows the same relation with hours on the horizontal axis and capacity on the vertical axis. Curve 2 shows the total charge against each hour. It is obtained by adding for each hour the marginal assessments per hour of use for all increments used at the given hour. Curve 3 shows for each hour the demand cost rate per KWH of consumption; it is obtained by dividing the total demand charge against each hour by the KWH of consumption at that hour. Since the time increment is a constant, capacity is an indicator of the KWH of consumption. The process of determining hourly demand cost rates is now completed.

To this point, curves have been used, because a numerical example sometimes obscures a problem by omitting critical values. However, it may be useful to set up a simple numerical scheme to illustrate the procedure. Assume that the period dealt with is four hours long, and that the hourly capacities required are as shown in Table I.[2] In Table II,

[1] In Figures 3 and 4, each curve has its own scale. Thus the general level of Curve 1 relative to Curve 2 has no significance.

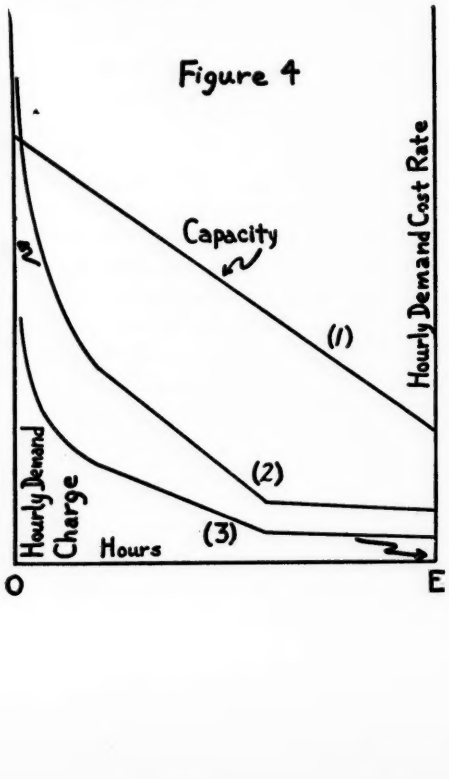


TABLE I

Hours	Capacity Used (KW)
1	1
2	2
3	3
4	4

TABLE II

(1) Increment	(2) Hours of Use	(3) Marginal Cost of Capacity	(4) Average Cost of Capacity	(5) Assessment	(6) Assessment per hour of use
1	4	480	480	432	108
2	3	384	432	432	144
3	2	528	464	528	264
4	1	592	496	592	592

[2] Perhaps it would be better to construct a more realistic example. However, the arithmetic involved would increase so much that the example might be hard to follow.

Column 2 shows the number of hours each increment is used; it corresponds to the curve in Figure 1. Columns 3 and 4 contain information like that shown in Figure 2. Column 5 corresponds to Curve 1 of Figure 3, and Column 6 to Curve 2 of Figure 3.

In Column 2 of Table III, the first

TABLE III

(1)	(2) (3) (4) (5) Assessments per hour of use				(6)	(7)
Hour	Increment 1	Increment 2	Increment 3	Increment 4	Total Hourly Charge	Demand Cost Rate
1	108	.....	.....	.....	108	108
2	108	144	.....	.....	252	126
3	108	144	264	.....	516	172
4	108	144	264	592	1108	277

increment's assessment per hour is charged against all the hours at which that increment is used. Columns 3, 4, and 5 are to be interpreted accordingly for the other increments. In Column 6 the total demand charge for each hour is found by adding the assessments per hour for all the increments used during the given hour; Column 6 thus corresponds to Curve 2 in Figure 4. Column 7 shows each hour's demand cost rate per KWH of consumption. The rate is found by dividing the hour's total demand charge by that hour's consumption, which is numerically equal to capacity; Column 7 is analogous to Curve 3 of Figure 4.

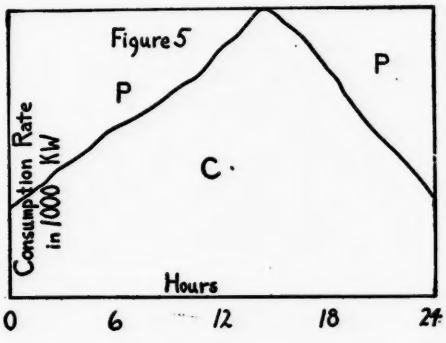
The method above has been developed with reference to the requirement that responsibility for existing costs be allocated fairly. However, the plan also conduces to improving the system pattern. Figure 4 shows that the demand cost rate (Curve 3) varies directly with the capacity (Curve 1). Therefore, the customers have the greatest incentive to shift consumption to the trough, and the least incentive to shift it to the peak.[3]

The actual procedure can be based directly on this model. Last year's consumption record should be used to establish this year's hourly demand cost rates, according to the method outlined above. A customer's demand charge for a month should be a sum of products of hourly rates by hourly consumptions. If the station pattern is relatively constant from day to day within a season of the year, perhaps one representative day can be analyzed for each season. Eisenmenger suggests that ordinarily it would be sufficient to use one representative day for determining a winter rate and another for determining a summer rate.[4]

Some modifications would be necessary, of course. Competition from other utilities might necessitate rate concessions for certain uses, and customers with their own generating plants might have to be given special rates. Moreover, no account has been taken of such differential elements as voltage transformation and variations in the customers' power factors. Only the main outlines of the problem have been dealt with.

[3] A method presented by H. E. Eisenmenger (*Central Station Rates in Theory and Practice*, Chicago: Frederick J. Drake and Co., 1921, pp. 277. ff.) is similar, but allocates demand costs entirely on the basis of capacity; it ignores the effects of economies of scale.

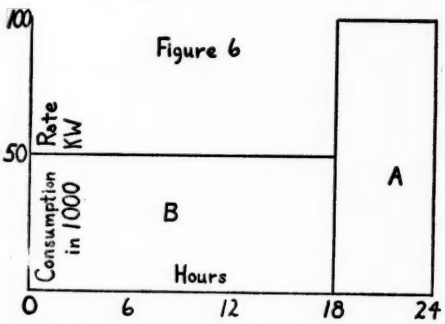
[4] *Ibid.*, p. 296

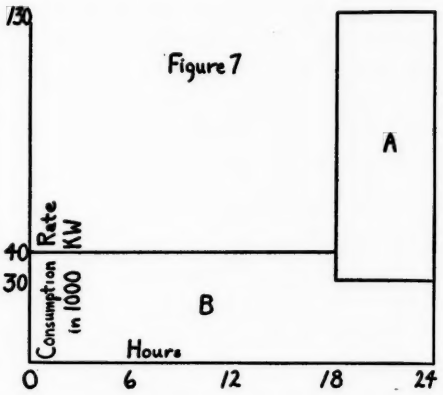


In the discussion of alternative theories it will be assumed that there are neither economies nor diseconomies of scale. This assumption is made tacitly by the methods' proponents. If it can be shown that a method fails on this assumption, there is no need to prove that economies of scale make the method still less suitable.

The first alternative theory to be examined is the "Phantom Customer" theory of H. W. Hills.[5] In Figure 5, the area C represents actual consumption, and the areas P represent the imaginary consumption of the Phantom. The total demand cost is divided equally over all KWH, including those of the Phantom. The Phantom's demand cost bill is divided among the peak load customers. A peak load customer's share in the Phantom's bill is proportional to the excess of his demand at the station peak over his average demand.

A conclusive criticism of this plan is that it does not discourage certain undesirable shifts. A customer whose demand at the station peak is less than his average demand may be able to shift some of his demand to the peak without increasing his bill. Let him change his demand from B in Figure 6 to B in Figure 7. The change raises the total demand cost from 2400 to 3120. In Figure 6, B's cost is 900, while A's cost is 600 + 900 = 1500. The 900 figure is the Phantom's share allocated entirely to A, since only A has a demand at the station peak greater than his average demand. In Figure 7, B's cost is 40 (18) + 30 (6) = 900, while A's cost is 600 + 90 (18) = 2220. B still pays no part of the Phantom's share, since B's demand at the station peak is still less than his average demand. Yet B's demand shift caused the increase in cost. Certainly the rate system should discourage such changes. Since the Hills plan fails to do so, it is not reasonable.





The two plans of W. J. Greene can yield an even more unreasonable result —a customer may be able to reduce his bill by making a change detrimental to the system. For his "Consumption and Demand" method, Greene's notation is as follows:[6]

x = the cost per KWH of that portion of the capacity costs that function with the KWH supplied the consumers.

[5] H. W. Hills, "Demand Costs and their Allocation," *Electrical World*, January 22, 1927, pp. 198, ff.

[6] W. J. Greene, "Determining Demand Charges," *Electrical World*, November 7, 1925, pp. 947, ff.

y = the demand cost per KVA of that portion of the capacity costs that function with the maximum demand of the consumers.
D = the sum of the consumers' maximum demands.
P = the maximum coincident demand, or peak responsibility of all consumers on the source of supply.
K = the KWH used by all the consumers in a year.
C = the total annual capacity expenses of all the consumers.
8760 = the KWH in a year for a 1 KW load operating at 100 per cent power factor and 100 per cent load factor.

Greene's equations for determining x and y are:

$$Kx + Dy = C \qquad (1)$$

$$8760x + y = \frac{C}{P} \qquad (2)$$

From (1), $$x = \frac{C - Dy}{K} \qquad (3)$$

From (2) and (3),

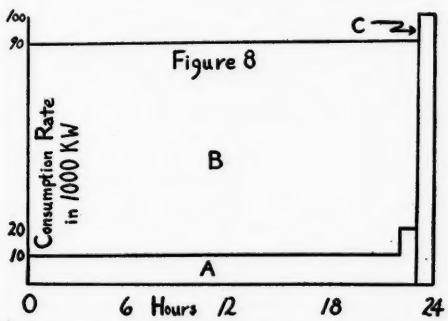
$$\frac{8760C - 8760Dy}{K} + y\frac{C}{P} \qquad (4), \text{ or}$$

$$y = \frac{C(8760P - K)}{P(8760D - K)} \qquad (5).$$

From (3) and (5),

$$x = \frac{C}{K} - \frac{DC(8760P - K)}{PK(8760D - K)} = \frac{C(D - P)}{P(8760D - K)} \qquad (6)$$

Consider the daily patterns shown in Figure 8. For simplicity it is assumed



that each customer's daily pattern is constant throughout the year. Thus 8760 can be replaced by 24.

D = 200
P = 100
K = 2170
C = 2400

$$x = \frac{2400(200 - 100)}{100(4800 - 2170)} = 0.9125$$

$$y = \frac{2400(2400 - 2170)}{100(4800 - 2170)} = 2.098$$

The expense is shared as follows:

A	240(0.9125) + 20(2.098)	= 260.96
B	1830(0.9125) + 80(2.098)	= 1837.79
C	100(0.9125) + 100(2.098)	= 301.05
		2399.80

Suppose now that A reallocates his consumption, so that he will have 10.39 for 23 hours, and 1 for the 24th hour. After the change,

D = 190.39
P = 101
K = 2170
C = 2424

$$x = \frac{2424(190.39 - 101)}{101(4569 - 2170)} = 0.894$$

$$y = \frac{2424(2424 - 2170)}{101(4569 - 2170)} = 2.54$$

The expense is shared as follows:

A	240(0.894) + 10.39(2.54)	= 240.95
B	1830(0.894) + 80(2.54)	= 1839.22
C	100(0.894) + 100(2.54)	= 343.40
		2423.57

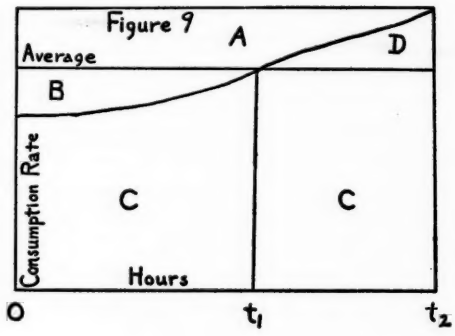
Thus A has saved money by a shift detrimental to the system. This result disqualifies the "Consumption and Demand" method.

Greene has also developed the "Used and Unused Capacity" method. But it leads to results identical with those of the "Consumption and Demand" method; therefore, there appears to be no need for discussing it.

Consider next the Oram-Robinson "Complete Peak" method.[7] It assigns a per KWH cost to each hour as the Hills method does; but the share of the Phantom is allocated differently. In Figure

[7] John Oram and H. H. Robinson, "The Complete Peak Method," *Electrical World*, August 25, 1928, pp. 259, ff.

9, areas C and D represent actual consumption, and areas A and B represent the consumption of the Phantom. The Phantom's share of each increment above the average is divided equally among the hours in D at which that increment is actually used. Since B represents a deficiency below the average, and D an excess, the KWH in B are allocated 1 to 1 to the KWH in D. Within an hour, a customer shares the hour's part of the Phantom's cost in proportion to the excess of his consumption at that hour over his average hourly consumption.



This system has the same defect found in the Hills method—an off-peak customer may be able to move some consumption to the peak without paying a higher capacity bill. If a customer's consumption is below his average during all times at which the system consumption is above the system average, he has no share in the allocation of unused capacity.

Thus every alternative method examined fails to motivate the customers properly, and so fails to assist in improving the efficiency of the system. The fundamental defect in each theory is its attempt to deal with individual patterns. The system must be dealt with as a unit. A redistribution of consumption over a group of hours can be expected only if the rate schedule establishes hourly demand cost rates. The rate assigned to a given hour should depend only on the total consumption at that hour, and should be assessed against each customer's consumption at that hour, without reference to his consumption at any other hour.

Reports and Comments

Some Considerations on the Land Market in Europe

IN some European countries, and particularly those in the Mediterranean basin, prevailing conditions make investment in large agricultural enterprises very promising for any one who will not merely invest his capital but also will undertake personal management of an agricultural enterprise to be operated by modern technological and scientific methods resembling those used in urban industries. Large landed properties are being dissolved; there is a great scarcity of capital and a backward state of agricultural technology but there is a dense population skilled in agriculture. It is an opportunity for organization and for leadership.

In Italy, for instance, the possibilities offered by agriculture in a land thickly inhabited by a trained peasant population but with but little capital, are immense. In many parts of the South a million dollars could buy the land and cover the plant expenses of large farms for the production and the marketing of greens and choice fruit. Modern agricultural technology offers such high margins of profit to those who are able to employ it that the invested capital is sure to get a high rate of interest.

During the nineteenth century, throughout practically the whole of Europe the basic wealth was in real property: land and buildings. The great fortunes accumulated by noble families were, for the most part, large estates on which thousands of peasants worked for small payments in kind (wheat, maize, oil, wine, etc.), or in money. Wages for manual labour were low and the weight of taxes was light: the interest on capital invested in land was therefore high. In Southern and Eastern Europe the predominantly agricultural character of the economy made this general characteristic even more important. In such countries as Hungary, Bulgaria, Southern Italy and Spain, the agricultural population was from 60 percent to 85 percent of the total. Nor should one forget that Russia had an exclusively-agricultural economic structure at that time which was further enhanced, in a sinister way, by peasant slavery and not abolished until 1861.

In western and northern Europe, however, the leaven of the industrial revolution was more potent. The influence of the French Revolution had cut more deeply into landed property of feudal origin. Since the last century, therefore, there has been a marked decrease in the relative importance of agriculture in the economy of these countries, even though landed property continued to be the foundation of great fortunes and the land tax remained the hinge on which the revenue of the state and other public bodies turned.

In the countries where industry was making a promising start personal estates began, even in the first half of the 19th century, to fulfill a fundamental function of their own and to acquire an importance and a prestige which were unknown.

Meanwhile, modern methods of cultivation were being gradually introduced in agriculture (up to then carried on according to old rules and customs); and in many countries these new methods brought agriculture to the standards and methods which tended to parallel those of industry.

Thus, the European economy, on the eve of the first World War, was essentially agricultural in the eastern and southern countries and predominantly industrial in the western and northern European states, including Germany. But real property, land and buildings, continued to be the most conspicuous factor.

The enormous impulse to industrial production in many European countries during the twenty years between the two wars, and the intensification of agriculture under a food policy of self-sufficiency, substantially reduced the standard of living of the masses but promoted the formation of industrial plants and agricultural investments (drainage, fertilization, etc.,) which absorbed almost all the available labor.

In this period, European agriculture probably reached its peak of greatest importance. Rural estates were the object of the liveliest market dealings, even though restrictive laws began to be promulgated by the governments in order to encourage the formation of small estates directly cultivated by the owners and to limit the excessive power of the large landowners. In Eastern Europe, after the great land reforms which were carried out immediately after the war (1919-1925), agricultural property again acquired a certain degree of juridical and economic stability. But in certain countries, like Poland, Hungary and perhaps even Jugoslavia, the reforms were not of a revolutionary character and the large estates continued to retain their privileges almost intact.

The twenty years between the two wars therefore have witnessed a gradual consolidation of the people's interest in landed property; an interest which was enhanced among vast numbers because of the fascination that the European countryside exercises upon the inhabitants of the cities and the satisfaction which one gets from practicing agriculture in surroundings made more attractive by the use of modern technical methods.

Then came the second world war: a long war of destruction and exhaustion, which was to come to its end only in late 1945. How has this war left Europe? It is not too difficult to answer: industry has been mortally wounded, and agriculture, which used to get from industry its basic equipment, has had to go back to old systems of cultivation, to the slow productive rhythms of ancient tradition. The cities of many countries have been partly destroyed, the number of dwellings at the disposal of the people is far below their requirements, and the standard of living has been lowered in a fearful way.

Making the situation even more complicated, there is on top of it all economic legislation which is partly a survival from war conditions and partly the result of the initiative of new governments and this tends to limit the powers of those who own the remaining buildings and such agricultural enterprises as are still producing. This complex legislation was aimed against the monopolistic conditions enjoyed by many landowners. It can be said that the aim of counteracting monopoly has been attained in full. In fact, owing to the "freezing" of rents, the present rents of urban buildings are hardly sufficient to cover the expenses of maintenance of the property, and the rates on leased agricultural land do not pay the owners an income proportionate to the market value of the estates.

This general situation explains many strange things which are to be found in the European real estate market: things that could hardly be understood by anyone not conversant with the difficult political and economic situation in which the owners of real estate find themselves in many parts of Europe.

Real estate is, by its nature, easily indentifiable by the tax authorities. The survey register of land and buildings, which has very ancient origins (being found among the Egyptians and Chinese of thousands of years ago), shows how carefully assiduous financial administrators have been in measuring surfaces, in ascertaining revenues from the land and in surveying buildings. At a time like the present when, in Europe at least, huge fortunes are a sort of moral and political scandal and economic legislation tends to fight with great energy the privileges of owners of large agricultural estates it is easy to understand why there is, on the part of large landowners, a tendency to conceal their fortunes and, in many cases, to sell a part of their estates. In addition, the newly rich, including thousands of people who, through the revolution in prices and the exercise of more or less clandestine traffics, have made large fortunes, hesitate to invest their money in such public and visible ways.

It is for such reasons that the land market is stagnant. When to these facts the uncertainty of the political situation is added, it can be understood why in many countries of Europe the present market values of real estate are considerably below figures which could be considered "economic" prices. Apparently the prices of real estate would be even lower if the fear of further inflation did not cause certain would-be savers to jump the ditch either to avoid even greater losses than those which are foreseen in the case of real property investments or to at-

tain a better distribution of their capital among different investments.

The real estate market for small land properties, flats, and houses for use by the owner's family, is not as active as it would be if the outlines of economic policies in Europe were more precise. There is occasional activity of local or limited economic interest. But in many European countries, like Italy, France and Spain, the profit which can be earned by the capitalist in view of the real estate market for large combinations of land and buildings is sometimes quite remarkable. The opportunity for intelligent, vigorous development of the possibilities of modernized agriculture stands out as an outstanding fact of the southern European economic situation. But in Europe, the capitalist investing in agricultural land must attend to the production himself; he must not confine himself to renting out the land.

PROF. GUISEPPE MEDICI

Istituto di Economia e Politica Agraria, Rome, Italy.

Non-Agricultural Factors in Land Prices

PRICES of rural real estate are becoming increasingly independent of the agricultural productivity of the land. Although investors continue to use the capitalized net income from farm land as their basis for determining its value, evidence indicates that other factors tending to place higher values on land are in operation in many rural areas. It would appear that the capitalization of expected future net farm income of ordinary farms serves as a floor price rather than as a ceiling price for most agricultural lands. It is important, therefore, to recognize and understand other factors influencing the "land market" as well as the capitalization procedure before attempting to explain prevailing prices being paid for rural property or to predict future trends in land values.

The generally accepted method of evaluating farm land is to determine the normal or expected future income from the property to the landlord (or in the case of an owner, the share of the income attributed to the land) after deducting necessary expenses. This net income figure is then, theoretically at least, capitalized at the rate which the prospective purchaser believes he could obtain from alternative investments which offer comparable items of safety or risk.

The accuracy of such an appraisal depends on the accuracy with which future income and expenses can be predicted and the correctness of the estimates of risk and safety as compared to alternate investments. The prospective purchaser can check his estimate of value, obtained by the capitalization process, with the prices being paid by others for comparable properties. Often he will find a wide divergence between the prices which the future income he expects would seem to justify and the current sales prices for such properties. Such difference seems to be especially great in the poorer land areas and in those areas near industrial centers.

Variations between capitalization method valuations and sales prices often are the result of individual differences in determining the net income or the capitalization rate, or they may be the result of non-agricultural or non-income producing factors dominating the land market in that particular locality. There is also a tendency on the part of some people to overestimate or underestimate the future income from land as well as a wide range in what different individuals would produce on the same land. Likewise there is a wide range in the rates at which individual buyers are willing to capitalize their expected income. Farmers tend to overestimate the proportion of the net farm income attributable to land and often capitalize into land values at least a part of their income from management and their labor wage. This latter is especially common in poor land areas where there is intense competition for land. A heavy non-farmer demand for these farms for homes or as homesites forces farmers to pay more than the actual income above labor and other costs can justify. Thus farmers reduce their labor and management wage in order to become farm owners. Such situations are

especially common in areas where small farms do not allow the farmer to fully utilize his labor at productive work.

Another factor having considerable influence on current land prices is the type of house on farm land. The residence value of the house in many areas exceeds the value of the entire farm when calculated by capitalization of the net income from the farm land. This is especially true in those areas adjacent to industrial centers where there is a serious shortage of housing. High real estate values in these cities have driven many workers as well as many older and non-laboring people to seek lower cost housing by moving to rural areas. Often these people have no interest in farming or in obtaining a living from the land. Even in those cases where the possibility of raising a garden or other farm produce is taken into consideration, the income from the land is definitely of secondary importance. In such cases, the farm land on which the house is located assumes the position of a city lot—and excessive size might even be a liability rather than an asset.

In as much as the demand for rural residence property has spread not only into the poor land areas, but also into the most commercial areas of the corn belt, farmers and other investors find themselves competing not only between themselves for land but often must compete with non-farmers interested in the house on the farm as a residence. This accounts for current sales prices of as much as $400 per acre on 10- to 40-acre tracts with good houses. While such values are "too high" to be justified by the income which the owner can receive either by farming the land or from renting it to a farmer, the purchaser can justify the cost if he includes with any returns from the land the rental value of the farm home which he expects to occupy. For example, a farm home of the type which would rent for $500 per year in a town plus 35 acres of crop land which could be rented for $5 per acre to neighboring farmers might easily justify a valuation to a purchaser of $10,000 or more, probably three times the value of the 40 acres from a strictly agricultural standpoint. In areas where land has very low productivity, the home value of a house on an 80-acre farm to a non-farmer may often be several times the value of the entire farm from an agricultural standpoint and on smaller tracts the agricultural value of the tract may become insignificant when compared to the replacement or home value of the house.

To the investor purchasing land as an investment and receiving as his return part of the income from the land, the house is a necessary expense item rather than an added value for he must provide and keep up the house in order to obtain a satisfactory tenant. The farmer purchasing a farm to operate should consider the farm house much in the manner of the investor, but many farm operators are willing and do pay premiums for better-than-average farm homes. This premium which some farmers are willing to pay for well improved farms may (or may not) be offset by other differences in evaluation. The fact remains, however, that farmers and investors alike recognize the necessity for some improvements in operation of a farm and usually deduct from the productivity value of the farm if such improvements are lacking. Whether above average improvements, other than a house, will bring a premium price when a farm is sold depends primarily on the demand or competition of purchasers with a special use for these improvements against purchasers not needing such improvements.

The home-site value of unimproved land presents a slightly different and more difficult problem of evaluation. As in the case of a city lot, its value depends on the desirability of the location with reference to roads, transportation, improvements, scenery, healthfulness, etc. In most cases prices paid for such tracts are payments for "space" rather than payments related to the agricultural value of the land. Involved also may be a speculative value of properties suitable for subdivision. Here again, capitalization of farm income has no real part in determining the value of a tract of such land. Much of the increased value of such properties is due to improved means of transportation which have made these areas readily accessible from industrial centers where workers are employed.

A third factor affecting value of farm real estate is the ability of the land to provide the operator with sufficient income for family living expenses plus some additional income available for savings or rent, or toward purchase of the land. Under the

assumption that we can and will have full employment, farm operators in the future will have alternatives of other gainful employment. Farms unable to return the operator a labor and management wage equal to the generally accepted level or equal to his alternative employment opportunities will tend to have no "economic rent" or "rent value." Under these conditions, if we assume a net labor income on the farm of $1000 as equal to the minimum legal industrial wage, farms not returning at least $1000 in net income could not be economically operated and no rental value could be justified for a landlord of such property. Even with current high prices a high proportion, possibly as high as one-half of the farms in the eight North Central States, do not provide the operators with a net income of $1000 for family living expenses. Full employment at present wages and current level of farm income would make farming relatively less profitable than alternative employment in possibly two-thirds of the counties in these states. This would result in a marked decrease in the intensity of agriculture in these areas.

An increase in the opportunities for more profitable employment in non-agricultural enterprises may change some of our less productive farmland communities to the status of rural residence areas for part-time farmers and non-farm workers. The extent to which this process has already developed is indicated by the fact that even in 1939, in nearly one-third of the counties in these eight states of the North Central Region, 25 percent or more of the rural farm labor force were not engaged in farming. With the wartime shifts, this figure is probably much higher now. If we add to this number of non-agricultural workers residing on farms the part-time farmers obtaining the major portion of their income from non-agricultural sources, it becomes evident that already many of our poorer land areas are primarily rural residence areas. Many of the remaining persons in these areas obtaining their income from agriculture live on the land primarily because they do not want heavy or full-time employment. These include elderly men, the physically handicapped, and semi-retired individuals. These people, although they obtain the major portion of their income from agriculture, do not expect to make as large incomes as might be possible in industry. If they rent or purchase land, they do not expect to justify the price paid from agricultural incomes.

Small farm operators in marginal land areas usually find it impossible to purchase farm land out of their farm income. The competition for land from non-agricultural residents and from part-time farmers often forces the price of land above the agricultural-income-producing value of the farm. Even in those areas where the price per acre is based on the income from the land, many farmers have such small units that their total income is still insufficient to provide an acceptable standard of living and they can pay for land only by reducing their standard of living. When part-time farmers and rural residents are not purchasing land the price of land is supported by the fact that the larger and more economically operated farm units are able to provide their operators both with a satisfactory income and living standard and a return from the land as well. These three classes of purchasers all tend to force the price of land above the level that allows the small farm operator to earn wages comparable to those available from alternative employment.

Thus we may have in the same area and on the same grade of land some commercially profitable farms, some subsistence farms, and some properties more valuable as rural residences than as farms. Within an area, the size of the farm unit and the type of residence are the primary factors determining in which group each farm belongs. Combination of small farm units will tend to result as persons interested in rural residences dispose of their agricultural lands to owners of other farms keeping only a "rural lot" for their residence.

Considering the future, it would appear that in the highly productive agricultural areas many small tracts, especially those with homes on them, and large tracts with above average improvements can be expected to continue to sell at prices higher than those justified by a capitalization of the farm income of the ordinary size farms. Capitalization of farm income will probably continue to be the method for determining basic land values in the highly commercialized agricultural areas. In the

poorer land areas and especially in those areas near industrial centers, the basic consideration determining the sale price of many farms will continue to be the value of the house as residential property or the land as a home-site rather than the productivity of the land.

In areas where the value of the property is determined by its value as residential property, the trend in the costs of home construction may have more bearing on land prices than do the trends of agricultural prices and costs. There seems to be no reason to believe that the importance of the rural residence value of farm property will decrease in the future. With the increase in the use of fertilizers and intensification of agriculture in the better land areas, it seems reasonable to expect an increasingly large proportion of our rural properties to derive their values from their residential opportunities rather than from their agricultural-income-producing capacity. However, if we are not able to maintain or to increase industrial employment, many of these rural residents may be forced to attempt to secure a living from agriculture, either by farming their own land or by working for other farmers. Under such conditions, many of these properties would lose their rental value and the prices as a result would fall markedly. The justification of current land and rural property prices in both the highly commercial and marginal agricultural areas depends on our maintenance of a high rate of industrial employment with its resulting high demand for farm produce. In the commercial areas a high demand for agricultural produce is necessary to maintain farm incomes while the residential areas need a continued high industrial employment for these residents in order to maintain their ability to pay for food and housing.

GEORGE H. WALTER

Bureau of Agricultural Economics, U.S. Department of Agriculture, Milwaukee, Wisconsin.

Acreage Allotments and Land Prices*

"How much is a tobacco allotment worth?"

"Well sir. I reckon it's worth right much nowadays. Th' sayin' goes around here that a tobacco farm sells for a thousand dollars for every acre of allotment. They'll tell you that all over North Carolina."

WITH rising prices for farm land, particularly in the tobacco areas, such statements as the above give increased significance to questions of the role of acreage allotments in the farm economy of the present and the future. From prewar levels farm land prices in the major tobacco areas have doubled, reflecting a similar advance in the price of tobacco. But farmers who do not have acreage allotments cannot grow and market flue-cured and burley tobacco, except under a marketing penalty. Consequently, the acreage allotments assume the nature of a valuable franchise, the worth of which unquestionably is reflected in the market price of land to which the allotment is attached. Farms lacking such a franchise, or having relatively small allotments, sell for less than do otherwise-comparable farms having substantial allotments.

In 1945 acreage allotments and marketing quotas were in effect only for flue-cured and burley tobacco. Quotas have been proclaimed on fire-cured and dark-air-cured tobacco for the 1946-47 marketing year. Acreage allotments and/or marketing quotas were in effect in earlier years for corn, cotton, wheat, peanuts, potatoes, commercial vegetables, rice, and other types of tobacco. An important issue facing American agriculture is indicated in the Report of the Secretary of Agriculture for 1944: "As to whether any return to acreage allotments and marketing quotas will be necessary, it is impossible as yet to say. But it is important to note that the legislation which authorizes such procedure is still in existence. They should be used only as a last resort." Secretary of Agriculture Clinton P. Anderson, speaking at the National Cotton

*This paper has benefited from the help provided by two former co-workers of the author: Fred A. Clarenbach, now with the University of Wisconsin, and Alvin L. Bertrand, on military leave from Louisiana State University. The opinions in this paper are the author's and do not necessarily reflect the official views of the Bureau of Agricultural Economics.

Picking Contest at Blytheville, Arkansas, on October 5, 1945, said: "I know that you would like to avoid the necessity of having marketing quotas again. But unless we keep our heads and proceed mighty carefully, we will in all probability face the necessity of returning to them."

If it should become necessary once more to use these types of controls for various crops "as a last resort," questions relating to a conversion program for the cotton South, the Great Plains, and other areas, efficient use of economic resources, differential effects on farm land values, access to economic opportunities, and similar issues will be of basic significance. However, the limited purpose of the discussion that follows is to indicate some of the results of the acreage allotments, with particular reference to land prices. First a brief summary of the allotment system is necessary for those readers relatively unfamiliar with the development of the acreage adjustment program during the last 12 years.

National, State, County, and Individual Allotments

National marketing quotas and/or acreage allotments have been established for corn, cotton, wheat, tobacco, peanuts, potatoes, and rice in certain years since 1933, as provided by national legislation. Because of the Supreme Court decision declaring the original AAA Act unconstitutional, and because of supply in relation to demand and farmer referenda in which a sufficient number of voters opposed the proclaiming of quotas, allotments have not been continuously in operation for each of the major crops for the last 12 years. Furthermore, during the war, because of the national emergency, quotas and allotments were terminated for all commodities except certain types of tobacco. The laws are still in existence, however, and a return to allotments would be largely a matter for administrative determination.

When these laws are in effect the national acreage allotments are divided among the states producing the commodities. The state allotments are then divided among the counties, and local committees apportion the county allotments among individual producers. Corn, cotton, peanut, tobacco, and wheat allotments are assigned to farms; rice allotments are apportioned among persons producing the crop.

An allotment for a farm, then, is the acreage of tobacco, corn, wheat, cotton, or peanuts that may be grown and the product marketed without incurring a penalty. The allotments are determined on a slightly different basis for each commodity, but among the factors considered by the local farmer committees in establishing an individual farm allotment are: past acreages, with adjustments for abnormal weather conditions; land, labor, and equipment; crop-rotation practices; tillable acreage; type and condition of soil, and topography.

Allotments Have Value

Returning to the $64 question at the beginning of this article, we are now ready to ask what truth there is in the story you can hear "all over North Carolina" and elsewhere that tobacco farms are worth a thousand dollars an allotment acre.[1]

There can be no question that tobacco acreage allotments and associated marketing quotas, appertaining to particular farms, do now constitute a major factor in the value and market price of such farms. I. W. Duggan, governor of the Farm Credit Administration and former director of the Southern Division of the Agricultural Adjustment Agency, is authority for the statement that the "number and amount of farm allotments , . . is, no doubt, a real factor in appraising the 'value' of a farm, just as its location, size, topography, type of soil, fertility, etc,, are factors in influencing its value." Black[2] states that "AAA subsidies are already (1942) being capitalized in higher land values." It seems virtually impossible, however, to obtain market data for accurate and reliable measurement of the value of allotments and quotas. No two farms are exactly alike; and the wide differences between farms actually sold, even in a given area over a relatively short recent period, would require rather arbitrary adjustments of actual price to achieve comparability. Therefore,

[1] Frank H. Jeter claims that any farm in the flue-cured tobacco growing areas of North Carolina is "worth exactly the AAA tobacco allotment" and "the value of this allotment varies from $1,000 to $1,500 an acre." See his article entitled, "New Way to Price Farm Land," in *The Farm Journal*, October 1945.

[2] John D. Black, *Parity, Parity, Parity* (Cambridge, Mass.: Harvard Committee on Research in the Social Sciences. 1942), p. 248.

no attempt is made to employ mass statistical methods to isolate the effect of acreage allotments on land prices.

The alternative approaches used consist in collecting handbills and newspaper advertisements referring to farms wanted or offered for sale or rent, in which allotments are prominently mentioned as a factor of value; noting references to acreage allotments in deeds and contracts; noting oral comments and statements made over a period of years by persons familiar with the land market in tobacco and cotton areas including buyers and sellers of farms, real estate agents, appraisers, and agricultural workers; and presenting data on penalties paid for over-planting or planting without an acreage allotment.

Newspaper Advertisements and Handbills

Abundant presumptive evidence that acreage allotments influence farm land values can be found in newspaper and farm magazine advertisements and handbills announcing farms for sale or rent. Frequently the size of the allotment is indicated in large or bold-faced type. Advertisements of this character began their appearance a number of years ago, and the examples here cited have been collected since 1940. Sunday editions of some Southern newspapers have contained dozens of ads that prominently mention acreage allotments; farm ads in weekly newspapers in tobacco areas nearly always give the size of the tobacco allotment; and blotters and other forms of advertising passed out by real estate agents do likewise. An ad for a single farm sometimes refers to acreage allotments for more than one crop, and in several instances noted allotments were mentioned for cotton, tobacco, and peanuts. Some examples of these ads follow.

"FOR SALE 160 ACRES, 4-horse farm, 6- room house, tenant houses, barns. Cotton, tobacco, peanut allotments . . . "

"FOR SALE—SCOTT COUNTY FARM, 375 acres, 50 -acre tobacco base . . ."

"WANT TO BUY 100-ACRE FARM with 60 or 75 acres in cultivation, with good buildings and fence, good cotton, peanuts and tobacco allotments . . . "

"WANTED TO BUY—3 to 5 acres tobacco base . . . "

"WANT 40 or 50 acre farm. To be paid for with cotton payments . . . "

" . . . AT AUCTION—Friday, August 11th, . . . This fine Cattle, Grain and Tobacco Farm . . . The land is suited for tobacco, having a 6-acre tobacco allotment, 2 good tobacco barns and pack house . . . "

"AUCTION SALE—530-acre farm, 220 acres cleared. This farm will be subdivided into 6 complete farms ranging from 75 acres to 100 acres . . . Each farm will have tobacco allotment of 4 acres."

"WANT good man for small place, 20 acres cultivation, 5 acre cotton allotment . . "

"WANTED: Farm with 5 to 8 acres tobacco allotment . . . can't pay more than $4,000 . . . "

"WANT to buy 50 or more acres good farm land, with or without houses or barns. Pay cash if reasonable. Give location, terms, cotton allotment, and full details . . . "

"WANTED—To buy 2 acres tobacco lease for 1945. Will pay well . . . "

"WANT FARMER with force for 2- or 3-horse farm. Allotment, 14 acres peanuts, 14 acres cotton . . . "

It is significant that, in most of the ads, mention of the tobacco or other allotment comes near the beginning. The emphasis on the allotment factor clearly indicates its importance in the minds of buyers and sellers.

Land Deeds and Contracts

Occasionally buyers and sellers of land consider the allotment of sufficient importance to specify its size in land deeds and contracts; especially is this true when a farm unit is being divided and the two parties decide they want the allotment divided in a particular way. The following examples are quoted from recorded deeds:

"It is the intention of the aforesaid grantor and he does hereby convey unto the said (name) 9-10 of an acre of tobacco allotment along with the realty hereby conveyed." (Virginia)

" . . . it is agreed and understood by and between the grantors and grantees that the premises herein conveyed carries no tobacco allotment." (Tennessee)

"It is further agreed by the parties of the first part that the tobacco allotment for the above described property will be based on past history which is 5½ acres." (North Carolina)

" . . . no tobacco acreage is now allotted to any part of this sub-division." (Virginia)

" . . . and the parties of the first part hereby convey and guarantee a tobacco allotment of 5 acres on the basis of the 1945 allotment." (North Carolina)

The buyer and the seller of part of a farm frequently agree upon a division of the tobacco acreage allotment appertaining to the whole farm and then visit the county AAA office to report the terms of their contract. A majority of such contracts are oral, but the following statement is taken from one of the few written examples: "I do hereby release to . . . 1 acre of my tobacco base in addition to the 0.9 received in the division of crop land as per special agreement." (North Carolina)

It should be noted in passing, however, that statements in deeds and contracts, such as those quoted above, have no bearing on the actual division of the allotment because such divisions are made in accordance with established regulations of the United States Department of Agriculture. They are recited here merely as one type of evidence indicating the importance that individuals attach to the allotment.

Marketing Penalties as Evidence of Value

A farmer may produce and market allotment crops in excess of his farm-marketing quota, but upon so doing he must pay the cash penalty in accordance with the Agricultural Adjustment Act. The penalty is 10 cents per pound for any tobacco in excess of the marketing quota. As an example, in a tobacco-producing county tobacco growers paid penalties amounting to $9,580 in 1944 on excess tobacco produced on 68 acres, or $141 per acre. In 1943 the penalty paid averaged $91 per acre in excess of the allotment. Undoubtedly, those who paid the penalty would have gladly given equally as much and more for an allotment covering the excess acreage. Furthermore, in the same county *new producers* in 1944 paid penalties amounting to $4,777. In 1945 they obtained allotments totaling 18.2 acres. On this basis the allotment cost $262 per acre.

Opinions of Informed Persons

More or less precise estimates of the money value of tobacco acreage allotments were obtained in approximately 75 interviews during the summer and fall of 1945 with informed local people in tobacco areas in Virginia, North Carolina, Tennessee, and Kentucky. Supplementing and corroborating the information from these interviews are numerous conversations and indirect reports from various sources.

Although every person interviewed was of the opinion that the allotment is a major factor in determining the market value of a farm in tobacco areas, many were hesitant to make dollar estimates of this value. The character of the answers was such that it is not feasible to present them in tabular form. Some of the more typical replies are indicated in the following paragraphs.

The owner-operator of a large farm, a man formerly employed by a federal agricultural agency, gave, in effect, three answers to the query concerning the value of tobacco acreage allotments. His first reply was that he would give very little for an allotment because he didn't know how long allotments would be in effect. "You can't tell about these farmers, they might vote out this program a couple of years from now." Later in the course of the interview, however, he ventured the opinion that most tobacco farmers recognized that the program was "a good thing for them" and that they were not likely to vote adversely upon it. His second answer came during a discussion of the value of an adjoining farm with a 4-acre tobacco allotment. He said he was not particularly interested in growing more tobacco than permitted by the 10-acre allotment on his present farm, but that nevertheless he would be willing to pay $200 an acre for the 4-acre allotment, if it were possible to transfer it to his farm. Finally, he said that the best way to arrive at the value of an allotment was to compute it on the basis of expected income. Pursuing this approach, he estimated that in 1944 his gross return per acre as landlord was one-fourth of the $600 income, or $150. An exceedingly generous estimate of production costs borne by him, he said, would be $50 an acre, which would leave a net rent of $100 an acre. Using a 5 percent capitalization rate, he was amazed to arrive at the "unreasonable figure" of $2,000 as the present value. Immediately, however, he went back to his earlier position that incomes from tobacco in future years are unlikely to average anything like present levels and that it is not realistic to capitalize present net rents in perpetuity as a measure of *value*. He concluded that what future net

land returns will be is "practically anybody's guess" and that tobacco allotments have "only a speculative value." He was aware, however, that the present market values of farms with tobacco allotments are heavily enhanced by this "speculative value,"but he was of the opinion that "any man who pays a thousand dollars an acre for an allotment is far out of line."

Another farmer, a man in his early thirties and until recently a tenant on a large farm, purchased a 151-acre farm in 1944 for $4,000. This farm has a 4-acre tobacco allotment. After considerable discussion of the value of tobacco allotments and the "right amount" of tobacco for his farm in view of available family labor, he concluded that he could use effectively an allotment of 6 acres. How much would the extra 2 acres be worth? The answer was, "I would have been willing to give $5,000 instead of $4,000 for the place." In reply to the question "What would you have been willing to pay if the allotment had been only 2 acres instead of 4," he said, "I wouldn't have bought it."

In a third case, a woman owned two farms in North Carolina on which separate tobacco allotments had been established. In recent years the two farms were operated as one and the total allotted acreage was grown on the better land of only one of the original farms. Recently the woman sold the poorer farm, on which a tobacco allotment of 4.2 acres had been established, in the belief that she could keep the allotment and continue to use it on the other farm. The sale price was $1,500. Soon after the sale, upon learning that she had unwittingly transferred the tobacco allotment with the smaller farm, the woman offered to repurchase the farm for $4,000, a premium of $2,500 over the sale price a few days earlier. The new owner decided, however, to keep his "bargain!" Evidently the allotment in this case was considered to be worth about $600 an acre.

A large farm in southern Virginia, with a tobacco allotment of 181½ acres, recently sold for $20,000. A neighboring farmer, a member of the county board of supervisors and familiar with market values of farms in the area, was of the opinion that the same farm with a 10-acre tobacco allotment would not have sold for more than $15,000. An experienced and competent farm land appraiser who was present agreed with this opinion. Here again, the allotment was estimated to have a value of approximately $600.

A successful farmer-businessman and part-time federal agency employee advanced the estimate that on small farms in the burley areas of Kentucky the tobacco allotment accounts for one-fourth to one-third of prevailing market prices for such farms. In illustration of this general relationship, he cited the recent sale for $6,000 of a 50-acre farm without a tobacco allotment. It was his opinion that the same farm with a 2-acre allotment would have sold for $8,000.

In a few cases tobacco land is rented for cash. In a Kentucky county, for example, the prevailing rental is $50 an acre per year on a 3-year lease. Taxes, upkeep of buildings, and incidental expenses probably total about $10 an acre, leaving a net rent of about $40 a year. If this rental were assumed to last indefinitely and were capitalized at 5 percent, the land would be worth $800 an acre. But if acreage allotments were discontinued after 3 years and as a consequence the rent of this land were reduced to $20 an acre, it might be said that the value of the allotment was $400 an acre. Of course, even if tobacco allotments are retained and incomes and rentals on tobacco land decline, the value of the allotments to the landowner will also decline.

Among other persons interviewed a director of a Kentucky bank who is also a real estate dealer estimated that a small farm with a 4-acre allotment would sell for $1,000 more than the same farm with only a 2-acre allotment. A secretary of a National Farm Loan Association in Virginia was of the opinion that the "normal value" of a tobacco farm is increased by $500 to $1,000 for each acre of tobacco allotment. A member of the staff of the agricultural college in another state said that an allotment is the difference between living and not living as a tobacco farmer. A farmer put it this way: "A farm without a tobacco allotment is like a 3-teated cow—it's a hard sale." A county committee of the Farm Security Administration will not consider a farm for purchase under the farm ownership program that does not have a tobacco acreage allotment.

To summarize briefly the results of these interviews, those persons who were willing

to estimate value of tobacco acreage allotments placed the value at from $200 to $1,000 an acre. Every person interviewed said that the allotments have an important influence on market values of farms, but a majority were unwilling to say how much in dollars an allotment is or would be worth to them. Many of these people, however, repeated the story that tobacco allotments were "worth a thousand dollars an acre when a farm is sold." It is the writer's estimate that a majority of the farms in the tobacco areas that were sold in 1945 and which had appropriate tobacco allotments were enhanced in market value by from $300 to $600 for each allotment acre.

Acreage Allotments and Other Problems Need Study

This article has been confined largely to the effect of acreage allotments on land prices. Analyses might well be made also of the influence of acreage allotments on property rights and their effect upon rents, interest, taxes, population movements, and conversion programs for major agricultural commodities.

Some of these problems have been mentioned before. For example, H. C. Taylor, in 1938, directed the attention of agricultural economists to the "possibility of seriously modifying property rights in land,"[3] through the establishment of a base acreage. He visualized the development of "the right to a base" becoming "secure and subject to sale separately from the land." If this possibility should become a reality, part of the value of the real estate might be transferred to an intangible property arising out of the system of acreage allotments. Dr. Taylor concludes with the significant statement that "the future evolution of property rights in bases . . . may have a profound influence upon the whole social order and shift our interest from land tenure to artificially created opportunity tenure."

The United States News reported more than 2 years ago that "various crop . . . bases . . . had taken on some property value."[4]

Plans have been suggested that would permit the sale or transfer of base allotments.[5] Should this principle be enacted and acreage allotments become separately marketable . . . "then maybe, we will come one day where somebody, instead of inheriting a farm will inherit an allotment.[6] Richards suggests that new producers could buy the land and the rights to an allotment separately.[7]

A conversion program for the cotton South may be markedly influenced by acreage allotments for agricultural commodities. Phillip E. Jones states that, "from a purely physical standpoint, the alternatives to cotton are good in the Coastal Plains, but the likelihood of acreage restrictions on tobacco . . . reduce the possibilities considerably."[8]

Before the adjustment program, tenants were interested in how many acres they might rent; with acreage allotments they want to know how much cotton, tobacco, or other crop acreage they can get. Formerly, a landlord could select tenants on the basis of certain characteristics of the family and fit the cotton, tobacco, or other acreage to the family. With allotments the family must be found that will best fit the acreage. To illustrate: "TENANT WANTED—To raise 7.8 acres tobacco." Since the labor of the family unit may be even more inflexible than the acreage allotment, the family may not always have the favorable characteristics desired by the landlord that make a "good" tenant family.

Acreage allotments and property rights, the influence of allotments on population movements, land tenure, and agricultural conversion programs, and other related questions will form the basis for further study and another paper at some future time.

JOHN E. MASON

Bureau of Agricultural Economics
U. S. Department of Agriculture,
Washington, D. C.

[3] H. C. Taylor, "Land Tenure and the Social Control of the use of Land," *Proceedings of the International Conference of Agricultural Economists,* Fifth Conference 1938. (London: Oxford University Press, 1939), pp. 144-5.

[4] *The United States News,* Washington, D. C. July 16, 1943, p. 6.

[5] For example, see Henry I. Richards, *Cotton and the AAA* (Washington: The Brookings Institution, 1936), pp. 326-9.

[6] *Farm Tenancy,* Hearing before the Committee on Agriculture, House of Representatives, 75th Congress, 1st Session, on H.R. 8, Serial A (1937), p. 312.

[7] Richards, *op. cit.,* p. 330.

[8] "Postwar Adjustments in Cotton Production in the Southeastern United States," a thesis presented at Harvard University in partial fulfillment of the requirements for the degree of doctor of philosophy, 1945, p. 19.

What Has Happened to Durham and Delhi?*

CHANGES in land ownership, size of ownership units, and type of farming during the period from 1924 to 1944 are phases of experience on the Durham and Delhi Land Settlements of California with which this article is concerned chiefly. The time from 1918 to 1924 is assumed to represent the original settlement period because it was during those years that the projects were purchased and subdivided, and allotments were assigned to the original settlers.

No attempt is made here to review in detail the history of the settlements, nor to discuss the problems encountered in the settlement venture because these subjects have been covered in previous publications. Detailed discussions concerning the development of the land settlements, the physical, economic, and financial problems encountered, reorganizations, reasons for failure, adjustments made between the settlers and the state, and the losses suffered by the state, are available in a publication by Dr. Roy J. Smith,[1] in reports issued by the California Land Settlement Board and the California Division of State Lands, and in articles by other authors.

Many data for this study were derived from these secondary sources. Supplementary, recent information was obtained from federal, state, and county official records, and from interviews with farmers, residents, and former administrators of the settlements.

Purpose of the California Land Settlement Program

The trend toward intensive irrigated agriculture in California, which started during the latter part of the nineteenth century, stimulated the establishment of several private land settlements throughout the state. Some of these settlements were successful. But many were so ill-planned that they sooner or later ended as miserable failures with consequent, severe loss to the settlers and to the communities involved. In an effort to relieve this situation, the state of California initiated its land settlement program in 1917. The principal objectives were:

"(1) to prevent the exploitation of prospective colonists by private colonization agencies; (2) to more quickly colonize the available lands of the state with a select class of settlers and thus to materially aid newly organized irrigation projects as well as to add to the prosperity of the state as a whole; (3) to demonstrate the effectiveness and desirability of state-controlled, planned-in-advance settlements with trained experts to advise and direct the developments and operations of settlers; with best community cooperative practices insured and with the services of the state university easily and especially available as opposed to the customary hit-and-miss methods of private colonization agencies; (4) to demonstrate the importance of very long-term loans at low interest rate, with small initial outlay, to the ultimate success of colonization."[2]

The state's over-all land settlement program was not planned originally for the colonization of ex-service men. It was not until 1919 that the State Land Settlement Act was amended to give preference to ex-service men in the sale of allotments. Few war veterans acquired farms in the Durham Settlement, the first of the two settlements established under the State Land Settlement Act, because by the time the amendment was enacted most of these farms were already allotted. Considerably more ex-service men obtained allotments in the Delhi Settlement, which was developed after the amendment became law. As the land did not sell so quickly at Delhi as at Durham, allotments were available for a much longer period and greater effort was made by those administering the project to obtain veteran settlers.

The history of the state's land settlement program at Durham and Delhi may be divided into three periods. The first, from 1918 to 1924, is referred to generally as the early settlement period, when conditions in the settlements were reasonably prosperous. Farm production and prices were

*The author gratefully acknowledges contributions of H. E. Selby, David Weeks, J. Winter Smith, and others in the preparation of this article.

[1] Roy J. Smith, "The California State Land Settlements at Durham and Delhi," *Hilgardia,* Calif. Agr. Expt. Sta., October 1943, pp. 399-492.

[2] California Department of Agriculture, Division of Land Settlement, *Final Report, June 30, 1931.* p. 18. Calif. State Print. Off. Sacramento, 1931.

relatively good. The settlers' morale was reasonably high. Future prospects appeared to be favorable.

The second, from 1924 to 1931, was essentially a period of readjustment. Serious production and economic problems became prominent. Settlers grew dissatisfied and restless. Administrative policies were revised. Readjustments in land use, in size of farm units, and in settlers' indebtedness to the state became necessary. The climax was the final financial readjustment between the settlers and the state in 1931, after which the state retired from this land settlement venture.

The years after 1931 represent the period of private initiative. The settlers were then on their own, conducting their affairs without state aid or control. After 1931 the state disposed of its unsold land in the settlements in the same manner that state land is sold anywhere else, subject to no other restrictions or previous plans.

The Durham and Delhi Settlements as they appear today are a result of influences from all three periods. How do they compare with the original settlement plans?

The Durham State Land Settlement

The original plan. The first state settlement was established at Durham, Butte County, in 1918. Durham is in the Sacramento Valley, 6 miles southeast of Chico, and approximately 180 miles northeast of San Francisco. The original settlement consisted of 6,240 acres of land irrigated by a gravity system from Butte Creek, which flows through the tract. The state paid cash for about 2,400 acres and purchased the remainder on contract with payments amortized over a period of 20 years in semi-annual installments at 5 percent interest. The property cost the state an average of $80 per acre. Most of the land in this settlement was of good quality. About three-fourths of the soils were rated "excellent" and "good" in accordance with the Storie Index method of soil evaluation.[3]

The soils of lower quality were in a tract of nonirrigable grazing land in the northeastern part of the settlement, and in a larger tract of clay adobe land in the southeastern portion. The adobe land was subdivided into fairly large tracts and usually allotted to settlers in combination with smaller tracts of good quality land. The nonirrigable land was never subdivided.

The first major subdivision was made in 1918. The sale of land started in the middle of that year. Allotments ranging from about 2 acres to over a hundred acres were sold to settlers on purchase contracts requiring a down payment of 5 percent of the purchase price of the land, with the deferred balance amortized over a period of 20 years in semi-annual installments with yearly interest rate of 5 percent. The settler was required to provide 40 percent of the cost of improvements on the land. The state advanced the other 60 percent secured by improvement contracts and amortized over the same period as the land payments.

Settlers contracted to buy land at prices ranging from $48 to $235 per acre, averaging about $150 per acre. The total price of farm units ranged from about $3,600 to $15,000. This covered the price paid for the land by the state; water rights, irrigation works, drains, and costs of surveying, roads, and other general improvements. The ditching and leveling of land for irrigation were treated as permanent improvements with costs chargeable to the settler. Prices were based largely on quality of soil. The smaller allotments generally were of the best land. "The average cost of the 40-acre farms in this settlement, with the improvements and equipment, would be about $300 an acre."[4]

The 5,040 acres of land allotted to settlers in 1919 consisted of 26 laborers' units of about 2 acres each, 3 small farms of from 3 to 9 acres, and 76 larger farms ranging in size from about 10 to 300 acres (Table I). The average size of all farms was 48 acres; that of farms 10 acres and larger, 65 acres. Two large and several smaller tracts amounting to about 1,200 acres remained in state ownership. Most of the state-owned smaller tracts were reserved for administrative purposes, and the two large tracts had been purchased by the state subject to existing leases to be sold only after these leases expired.

One of these large tracts was subdivided

[3] Walter W. Weir and R. Earl Storie, *A Rating of California Soils*, Calif. Agr. Expt. Sta. Bul. 599: 33, 34. Berkeley, 1936.

[4] State Land Settlement Board. *Information Regarding Progress under the Land Settlement Act of the State of California and about the Plans for Soldier Settlement in the Future*, pp. 11, 12, 16, 20. Calif. State Print. Off., Sacramento, 1919.

later into smaller farm allotments as additional settlers came in. These new allotments and subdivisions of some of the original tracts increased the number and proportion of the smaller units in 1924 (Table I). Some of the parcels originally allotted to settlers but consisting of the inferior adobe soils were turned back to the state, mostly in exchange for smaller tracts of better quality soil. These exchanges increased further the number of smaller units and reduced the total acreage allotted to settlers in 1924 to about 4,500 acres. Hence, the average size of all farms in 1924 dropped to 32 acres, and the average size of farms 10 acres and larger, to 47 acres. The total number of farms rose to 140.

Except for land reserved for administrative and other specific purposes, most of the allotments held by the state after 1924 were classified as unsuitable for intensive farm development. Some of this land was resold later without water rights at reduced prices for rice and grain production. The unirrigable land was sold as grazing land.

Of 127 original settlers who came to Durham during the settlement period from 1918 to 1924, about half were experienced farmers. Less than 10 percent of the total number were war veterans. Nineteen of the original settlers left the settlement between 1919 and 1924. They were replaced by 32 new settlers who acquired allotments or subdivided parcels from original settlers.

TABLE I. Ownership Units, 1919, 1924, and 1944, and Operating Units, 1944, Durham State Land Settlement, California.

Item	Ownership Units			Operating Units
	1919	1924	1944	1944
Size of Unit (acres):	*Number*	*Number*	*Number*	*Number*
Less than 3	26	34	26	26
3 – 9	3	14	21	18
10 – 29	9	37	40	23
30 – 49	34	33	31	27
50 – 99	16	10	17	24
100 and over	17	12	6	5
Totals	105	140	141	123
	Acres	*Acres*	*Acres*	*Acres*
Total acreage in all units	5,040	4,503	6,240	6,240
Average size of all units	48	32	44	51
Average size of units of 10 acres and larger	65	47	64	77
Percentage of acreage in units of following sizes (acres):	Percent	Percent	Percent	Percent
Less than 3	1	1	1	1
3 – 9	1	2	2	1
10 – 29	4	16	12	7
30 – 49	25	28	19	17
50 – 99	22	14	18	27
100 and over	47	39	48	47
Totals	100	100	100	100

The total number of settlers on the project in 1924 was 140. Nearly all the farms in 1924 were operated by their owners.

The Durham State Land Settlement seems to have been planned originally as a general livestock farming area, with alfalfa, grains and hay as major crops. Dairy and hogs were the principal livestock enterprises. Orchard crops, mostly prunes, which became fairly important later, probably were not emphasized in the original plan, because only about 4 percent of the land cropped during the early years was in orchard. Alfalfa, grain, and hay, on the other hand, were grown on more than four-fifths of the acreage then cropped .

The Durham Land Settlement in 1944. Conditions in the Durham Settlement today are not radically different from those prevailing when the project was first settled. All the farm allotments have now gone into private ownership. There has been remarkably little change in the number and in the average size of the private ownership units established in the early 1920's. For instance, the number of ownership units in 1944 was 141, about the same number as in 1924. Average size of ownerships 10 acres or more was 64 acres, almost the same average size as ownerships of 1919, when most of the adobe land was still in private ownership (Table I). A significant difference is the manner in which the lower quality land, in state ownership in 1924, has been consolidated into large ownership and operating units, and operated as parts of large farms, some with acreages extending outside of the settlement.

There has been some consolidation of land into larger farm operating units, through leasing. Assuming that all or nearly all of the farms during the early settlement period were owner-operated, the average size of farms 10 acres or larger has increased from about 65 acres in 1919 to 77 acres in 1944. This consolidation has occurred principally on land of lower quality.

The ownership turnover in allotments of early settlers has not been abnormally great. In 1944, 32 percent of the settlers who had allotments in the project in 1924 still owned land there, and an additional 10 percent of the 1924 allotments were still owned by relatives of 1924 settlers (Table II). This 20-year ownership record compares favorably with that of many private settlements made in this state during the same period.

Most of the farms in the Durham Settlement are operated by their owners. Farm tenancy in 1944 amounted to only about 16 percent of the farms and of the land in farms, including land leased by part-owners. This included about 6 percent of the farms and 4 percent of the land leased by farm operators from their relatives. No farms in the settlement were operated by corporations.

The present type of farming of the settlement is similar to that originally started. Durham is still a general livestock and orchard farming area with clover, grains, hay, and nuts as principal crops. Dairy and hogs remain as major livestock enterprises. Some of the land is used for grazing a few beef cattle and sheep. Some poultry is raised.

The most significant changes since the early 1920's have been a shift in the tree crops from prunes to almonds and walnuts, utilization of the poorer soils for rice production on a large-scale basis, and introduction of Ladino clover to replace some of the alfalfa acreage. The best land is still used for orchards, grains, beans, vegetables, and a few other crops originally produced in the area. In 1944, about 22 percent of

TABLE II. SETTLERS ON DURHAM STATE LAND SETTLEMENT IN 1924, AND RELATIVES, WHO STILL OWNED LAND IN 1934 AND 1944.

Year	Settlers		Relatives of Settlers		Totals	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
1924	140	100	....	....	140	100
1934	81	58	18	13	99	71
1944	45	32	14	10	59	42

the land cropped was in Ladino clover, 17 percent in rice, 11 percent in sorghums and corn, 10 percent in beans, 9 percent in alfalfa, 9 percent in orchard, and the remainder in small grains, hay, forage, and miscellaneous crops.

From the general appearance of the farms, the prosperity of the Durham Settlement compares favorably with that of other areas in California of similar type of farming. The general financial condition of the farmers as indicated by their ability to repay real estate mortgage loans has been good. Comparison of confidential data on repayment experience and delinquency for various periods indicates that these settlement farmers generally have made their payments on a par with farmers in the adjacent community of Chico, where the type of agriculture is similar.

The Delhi State Land Settlement

The Original Plan. The Delhi State Land Settlement was established in Merced County, California, 6 miles southeast of Turlock and about 100 miles southeast of San Francisco. The settlement consisted of about 8,400 acres of land irrigated by water provided by the Turlock Irrigation District. The land was mostly sandy soil of undulating topography and of much more limited agricultural value than the soil of the Durham Settlement. In its original state, most of the soil would have rated "fair" in accordance with the Storie Index. After leveling, about 95 percent of the soil rated "good" and "fair." Less than 1 percent rated "excellent" or "very good."[5]

The state paid an average of $96 per acre for the land. After developing the irrigation system, building the roads, making general improvements, and reserving certain portions of the tract for administrative and townsite purposes, the state offered the remainder to settlers at an average price of about $229 per acre. The land was sold on the same terms as those used on the Durham Settlement except that payments were amortized over 36½ years instead of 20. By express provision of the 1919 act, preference was given ex-service men in the sale of Delhi Settlement farms.[6]

The project was divided into 4 settlement units which were opened for settlement as developed. The first contracts with the settlers were made on May 1, 1920 for land in the first unit. Land in the second unit became available a few months later; in the third unit, during the spring of 1921; and in the fourth unit, in the late fall of 1922.[7]

According to the subdivisional plan of 1922, the 8,400 acres of land were subdivided into 401 tracts and the 2 townsites of Delhi and Ballico. Of the 401 tracts, 27 were slightly smaller than 1 acre and 61 averaged about 2 acres. These small tracts were intended as labor allotments for workers employed by operators of the larger farms of the settlement. There were 79 tracts ranging in size from 3 to about 13 acres which were intended principally as poultry farms, and 233 larger parcels ranging from 14 to 100 acres. Only 1 tract was larger than 100 acres. The average size of all the tracts was about 20 acres. In the actual allotment of farms to settlers, this subdivisional plan was modified by combining or subdividing some of the tracts into farm units which differed in size from those of the original layout.

In the Delhi Settlement the land did not sell so readily as in the Durham Settlement. Only about 4,800 of the 8,400 acres were allotted to 258 settlers during the settlement period, 1920-1924. The 4,800 acres allotted consisted of 52 allotments smaller than 3 acres, 44 ranging from 3 to 10 acres, 155 from 10 to 49 acres, and only 7 larger than 50 acres (Table III). The size of all allotments averaged about 19 acres; that of farms 10 acres or larger, 27 acres. The average size of these allotments was considerably smaller than the average size of the Durham Settlement allotments (Tables I and III).

About two-fifths of the 258 settlers who were in the Delhi Settlement in 1924 were war veterans. About two-fifths of the total number were experienced farmers. As stated previously, legislation enacted in 1919 giving ex-service men preference rights, and scarcity of allotments at Durham were mainly responsible for the higher

[5] Soil classification based on a special soil survey of the Delhi State Land Settlement by the Division of Soils, University of California, College of Agriculture; and Walter W. Weir and R. Earl Storie, *A Rating of California Soils*, Calif. Agr. Expt. Sta. Bul. 599: 1-157. Berkeley, Calif., 1936.

[6] California Department of Agriculture, Division of Land Settlement, *op cit.*, pp. 4, 5.

[7] J. Winter Smith. [*Report to the California Department of Agriculture, Division of Land Settlement. April 30, 1931.*] Typw., p. 1. Delhi, Calif., 1931.

proportion of veterans at Delhi. Failure to receive enough qualified applicants was principally responsible for the low proportion of experienced farmers.

It was expected originally that the Delhi Settlement would become an area of intensive farming, with considerable acreage devoted to tree fruits, nuts, and grapes. Livestock and poultry were introduced to provide income while orchards and vineyards were being developed by settlers who had limited capital resources. During the early years, more than half of the gross acreage cropped was in alfalfa and about two-fifths was in orchard and vineyard. Principal livestock enterprises were dairy and poultry.

The Delhi Settlement in 1944. Unlike the Durham Settlement, considerable change has taken place in the Delhi Settlement since 1924.

Nearly all the land that was held by the state in 1924 has gone into private ownership. Most of this shift took place after the state made its final adjustment with the settlers in 1931. The total number of pri-

TABLE III. Ownership Units, 1924 and 1944, and Operating Units, 1944, Delhi State Land Settlement, California.

Item	1924	1944		
	Ownership Units	Op. Units from 1924 Ownership Units	Total Ownership Units	Total Operating Units
Size of unit (acres):	*Number*	*Number*	*Number*	*Number*
Less than 3	52	39	130	123
3 – 9	44	43	66	69
10 – 29	111	79	103	94
30 – 49	44	33	46	43
50 – 99	6	30	34	36
100 and over	1	4	11	11
Totals	258	228	390	376
	Acres	*Acres*	*Acres*	*Acres*
Total acreage, all units	4,798	5,827	8,400	8,400
Average size, all units	19	26	22	22
Average size of units of 10 acres and larger	27	38	41	43
Percentage of acreage in units of following sizes (acres):	*Percent*	*Percent*	*Percent*	*Percent*
Less than 3	2	1	2	2
3 – 9	5	4	4	4
10 – 29	47	26	24	21
30 – 49	35	22	20	19
50 – 99	8	35	26	29
100 and over	3	12	24	25
Totals	100	100	100	100

vate ownership units increased from 258 in 1924 to 390 in 1944.

Most of the new settlement has been in the Delhi townsite where settlers have acquired numerous small holdings ranging from a city lot to about 2 acres. Hence, the number of ownerships smaller than 3 acres has increased from 52 in 1924 to 130 in 1944. Most of these small holdings have been acquired from the state during the last 5 or 6 years for rural residences and part-time farms. They represent unrestricted settlement considerably different from that originally planned by the state. The Delhi townsite area, therefore, certainly does not resemble the elaborate community anticipated in the original plan. On the other hand, it is not very different from other communities in that same general region. Under present economic conditions, the settlers seem to be doing well. In most instances, settlers came from states other than California. Many of them find employment on the farms of the settlement; others in near-by urban centers.

Most of the farm land recently acquired from the state has gone into holdings much larger than those originally planned. There also has been a trend toward consolidation and enlargement of the individual holdings established in 1924. Consequently, the proportion of the total farm land in farm units of 100 acres or larger has increased from 3 percent in 1924 to 25 percent in 1944 (Table III). This consolidation has been accomplished chiefly by purchase of state land and of land relinquished by earlier settlers. In a few instances, consolidation has been effected also by renting.

This trend toward enlargement of farm units supports Dr. Smith's statement in a recent article on Durham and Delhi in which he enumerates as one of the problems: " . . . most of the settlers . . . retained farms much too small for raising grain, beans, and other similar crops. To obtain a desirable living from such crops farmers must have much larger acreages."[8]

Over four-fifths of the present owners live either in or near the settlement. About four-fifths of the farms and of the farm land are operated by the owners. Corporations control only about 2 percent of the land.

More turnover in allotments has occurred in the Delhi than in the Durham Settlement. About 25 percent of the 258 settlers in the Delhi Settlement in 1924 still owned land there in 1944. This included about 2 percent who were relatives of 1924 settlers (Table IV). Approximately a third of the original veteran settlers still had land in the settlement in 1944.

An average of about 4 percent of the total number of settlers at both Durham and Delhi in 1924 disposed of their farms each year during the 20-year period from 1924 to 1944. This rate of farm ownership turnover would be considered about normal for the average farm community.

The settlement has changed from a somewhat general type of farming area to the more specialized tree fruit, nut, and grape-producing farm community anticipated by the original planners. The dairy and livestock farming has nearly all been discontinued. The 50-odd poultry farms, except for several flocks of turkeys, are no longer used in that way. Very little alfalfa and other forage crops are grown now. In 1944, about three-fifths of the land cropped was in orchards and vineyards, and an additional fifth was in cultivated row crops, such as beans, corn, sorghums, sweet potatoes, and peanuts.

[8] Roy. J. Smith, "Problems Found in the California State Land Settlements at Durham and Delhi," *Applied Anthropology*, March 1944.

TABLE IV. SETTLERS ON DELHI STATE LAND SETTLEMENT 1924, AND RELATIVES, WHO STILL OWNED LAND IN 1934 AND 1944.

Year	Settlers		Relatives of Settlers		Totals	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
1924	258	100	....	....	258	100
1934	102	40	3	1	105	41
1944	60	23	4	2	64	25

The general appearance of the area is similar to that of other settlements in the same locality, but is not so good, on the whole, as that of the average community of similar type of farming elsewhere in California. There are within the settlement, however, certain farming sections planted to peaches, almonds, and grapes which are now highly productive. The soil is of limited value for the growing of some crops, but with proper treatment it has been found to be particularly adaptable to peaches, almonds, and grapes. With the aid of pest-resistant rootstocks and commercial fertilizers, enterprising farm operators are obtaining excellent yields, comparable to other fruit-producing regions of the state.

The general financial condition of farmers in the Delhi Settlement, as demonstrated by their ability to repay real estate mortgage loans, has not been so good as that of farmers in Durham, nor of farmers in near-by similar farming communities.

Analysis of confidential data shows that while during prewar years a higher percentage of land mortgage loans were delinquent at Delhi than at Durham or in near-by communities, the war economy has reduced the delinquency of loans in all communities to such a low figure that conditions are now similar almost everywhere.

State Losses

The unrecoverable loss incurred by the state in the settlement program at Durham and Delhi has been estimated at about $2,500,000, exclusive of interest.[9] About three-fourths of this sum was conveyed to the settlers in the form of adjustment credits. Some of these credits were granted to Delhi settlers in 1925, and some in 1931 to settlers both in Durham and in Delhi. The remainder, apparently, represented expenditures not conveyed directly to the settlers themselves.

Delhi was much more costly to the state than Durham. About 83 percent of the entire loss, representing about 80 percent of all adjustment credits granted and 91 percent of all the other expenses, was incurred at Delhi. Although the state lost much more at Delhi, the individual settlers there received directly a smaller proportion of the state's contribution in the form of credits than did the settlers at Durham. About 73 percent of the state's loss at Delhi represented adjustment credits granted to settlers, as compared with 87 percent of the loss at Durham. The state's loss per acre, based on each settlement's gross acreage, was about $250 for Delhi and $69 for Durham.

Many of the writings published since 1925 dealing with the Durham and Delhi Land Settlements have given emphasis to the fact that the state lost considerable money in its settlement venture. Principally for that reason, the state's settlement program has been generally referred to as a failure. There is no doubt that, from the standpoint of the state's budget, the settlements, Delhi in particular, were financial failures. As active farm communities (into which they have eventually developed) and aided, of course, by the state's readjustment program, they are now as successful economically as other similar farm communities in those same general regions. The settlers did not all leave the settlements and let the land revert to its original condition. That, perhaps, would have been complete failure.

During the early settlement period, the following was written about the Durham Settlement:

> "When this property was purchased, no landowner had lived on it for twenty years. It was farmed by tenants and hired labor. Today 120 families live in their own homes and till their own fields, and in these homes there are over 200 children. The selling price of the land has been increased, not only within the boundaries of the settlement, but around it. It has increased the revenue from taxes, increased the business of the surrounding towns, added to political and social strength of the state, has added to the aspirations, the comfort and happiness of every family."[10]

This statement, with some modification, would describe the Durham Settlement of today. Was the state's contribution toward its development justified?

General Conclusions

Both Durham and Delhi have developed into stable communities, with Durham the

[9] California Department of Agriculture, Division of Land Settlement, *op. cit.*, p. 17.

[10] State Land Settlement Board, *op. cit.*, p. 22.

more stable of the two. The turnover in ownership of farms has been relatively low, and owner-operated, family-size farms predominate in both settlements. The present type of farming in both is, in general, that which was originally envisaged.

The trend toward consolidation and enlargement of farm operating units at Delhi suggests that the acreages taken up by the first settlers there were too small.

From the general appearance of the two areas, and from available information on lending experience, Durham has been the more prosperous settlement. As a result of war prices, however, the farmers in both communities in general are now in good financial condition.

The state's average loss at Durham of $69 per acre for the entire tract is not much, if any, more than would have been experienced by any holder of land of comparable value during the decline in land values following World War I.

Principal reasons for the state's much greater loss at Delhi, and the less favorable progress of the settlers there, appear to have been (1) the poorer land, (2) the higher irrigation and other development costs, (3) the less experienced settlers, (4) the unanticipated crop pests and diseases, (5) the somewhat later development period which occurred almost entirely after the beginning of the postwar decline in farm prices, and (6) the small allotments of land taken up by the early settlers.

ADON POLI

Bureau of Agricultural Economics,
U. S. Department of Agriculture,
Berkeley, California.

Public Utility Financing in the First Quarter of 1946

DURING the first quarter of 1946 public utility security offerings totaled $155 million which is $659 millions less than the total for the fourth quarter of 1945 and the lowest since the second quarter of 1944. Many issues were offered during the last quarter of 1945 because of the large tax savings that could be realized in 1945; consequently, fewer issues were offered during the first quarter of 1946. Approximately one-half of the issues were offered in March.

Public utility long-term debt issues sold publicly are shown in Table I. There are four issues listed totaling $47.5 millions. The largest issue is the $23 million Saguenay Power Company, Ltd. 3's of 1971 which was offered in March at 105% of par to yield 2.73%. The second largest issue was the $15 million Hackensack Water Company 2⅝'s of 1976, issued in March at 105% of par to yield 2.39%.

The lowest offering yield of the quarter was shared by two issues, the Madison Gas and Electric Company 2½'s of 1976, and the Hackensack Water Company 2⅝'s of 1976, both of which had offering yields of 2.39%

TABLE I. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PUBLICLY, FIRST QUARTER, 1946

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)	Underwriters' Commissions (H)	Proceeds to Company (I)	Estimated Incidental Expenses (J)	Net Proceeds (K)	Cost to Company (L)
	%	$			%	%	%	%	%	%	%
Seattle Gas Co.											
First Mortgage.....	3-⅜	4,800,000	1976	January	102.27	3.50	1.98	100.29	1.61	98.68	3.70
Madison Gas & El. Co.											
First Mortgage.....	2-½	4,500,000	1976	February	102.25	2.39	.69	101.56	1.60	99.96	2.51
Hachensack Water Co.											
First Mortgage.....	2-⅝	15,000,000	1976	March	105.00	2.39	.58	104.42	.58	103.84	2.45
Saguenay Pr. Co., Ltd.											
First Mortgage.....	3	23,200,000	1971	March	105.00	2.73	1.25	103.75	.98	102.77	2.84
Total or Weighted Av.	.....	47,500,000	.....	.....	104.46	2.67	1.06	103.40	.92	102.43	2.77

TABLE II. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PRIVATELY, FIRST QUARTER, 1946

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)
	%	$			%	%
Florida Public Utilities Co. First Mortgage	3.25	1,400,000	1975	February	101.00	3.20
Iowa Southern Utilities Co. First Mortgage	3.25	10,000,000	1975	March	104.9063	2.99
Iowa Southern Utilities Co. Sinking Fund Debentures	4.00	3,290,000	1975	March	104.465	3.76
Kankakee Water Co. First Mortgage	3.00	1,500,000	1971	March	[1]	[1]
South Atlantic Gas Co. First Mortgage	3.50	850,000	1975	March	[1]	[1]
Total or Weighted Average		17,040,000			104.435[2]	3.19[2]

[1]Information not available.
[2]Exclusive of issues for which information is not available.

TABLE III. SUMMARY AND ANALYSIS OF PUBLIC UTILITY PREFERRED STOCK ISSUES OFFERED, FIRST QUARTER, 1946

Company and Issue (A)	Dividend (B)	Principal Amount (C)	Month of Offering (D)	Offering Price (E)	Offering Yield (F)
		$		$	%
Buffalo Niagara Elec. Corp. Par $100	3.60%	35,000,000	January	102.65	3.51
Potomac Edison Par $100	3.60%	6,378,400	January	101.75	3.54
Southern Union Gas Co. Par $100	4.25%	2,700,000	January	101.50	4.19
Central Telephone Co. Par $50	$2.50	250,000	February	[1]	[1]
Iowa Power & Light Co. Par $100	3.30%	5,000,000	February	101.50	3.25
Central New York Power Corp. Par $100	3.40%	20,000,000	March	101.50	3.35
South Atlantic Gas Co. Par $100	5.00%	100,000	March	102.00	4.90
Total or Weighted Average		$69,428,400	.....	.....	3.46[2]

[1]Information not available.
[2]Exclusive of issue for which information is not available.

TABLE IV. ISSUES OF PUBLIC UTILITY COMMON STOCK OFFERED DURING FIRST QUARTER, 1946

Company (A)	Principal Amount (B)	Month of Offering (C)	Offering Price (D)
	$		$
Pennsylvania Power and Light Co.			
No Par	18,187,190	January	10
Tennessee Gas and Transmission Co.			
Par $5	2,856,000	January	12
La Crosse Telephone Corp.			
Par $10	181,781	March	17
Total	$ 21,224,971		

of par. The lowest net cost to company after allowance for underwriters' commissions and estimated incidental expenses was 2.45% for the Hackensack Water Company 2⅝'s of 1976.

The weighted average offering yield on publicly offered issues was 2.67%. The range of the underwriters' spread was from .58% for the Hackensack Water Company 2⅝'s of 1976 to 1.98% for the Seattle Gas Company 3⅝'s of 1976. The weighted average of the underwriters' commission was 1.06% which is .48% above the average for the fourth quarter of 1945. The weighted average cost to company was 2.77%, which represents a small decrease from the 2.80% weighted average recorded for the fourth quarter of 1945.

Five issues of public utility long-term debt securities offered privately during the first quarter of 1946 are shown in Table II. These five issues totaled $17 millions. The largest issue is the $10 million Iowa Southern Utilities Company 3¼'s of 1975 offered in March at 104.9063% of par to yield 3.76%. For issues on which data are available the weighted average offering price is 104.435% of par and the average yield is 3.19% of par.

Table III presents a listing of the preferred stock offerings for the first quarter of 1946. There were seven issues totaling $69 millions with a weighted average offering yield of 3.46%. The $35 million issue of the Buffalo-Niagara Electric Corporation offered at 102.65% of par was the largest issue during the first quarter of 1946.

Three issues of public utility common stock, totaling $21 millions, were offered during the first quarter of 1946. The $18 million Pennsylvania Power and Light Company no-par issue offered in January at $10 was the largest issue. The three common stock issues are listed in Table IV.

ROBERT G. DUDLEY
HAROLD L. MILLER
Statisticians,
Public Service Commission of Wisconsin

Book Reviews

Earthbound China, a Study of Rural Economy in China. By Hsaio-Tung Fei and Chih-I Chang. Chicago: University of Chicago Press, 1945. pp. xviii - 319. $3.75.

Earthbound China is one of several volumes in which Chinese social scientists report the results of field studies done during the war under physical conditions of unbelievable difficulty.

The book analyzes the economic and social systems of three rural communities in the interior province of Yunnan. One of them is purely agricultural; in the second, agriculture is supplemented by the making of paper. In the third, agriculture has become somewhat commercialized to meet the demands of a near-by market town of some size. Each of the communities has made its peculiar adaptations to local conditions. But these differences are but variations on a common theme: the struggle for life on too little land, in a country where there is but little industrial and urban outlet for the excess population.

All of these villages, like most of the others in China, are in the toils of their own strong tradition of dividing the land among all the sons of each passing owner. We Americans—as Mr. Leonard Salter has shown in a Wisconsin study—keep farms intact, more or less, but divide the equity in each generation. French-Canadians keep both holdings and equity intact by shipping off their extra children; the old-country French keep down the birth rate. The Chinese, for their part, simply keep on dividing the land. It is the custom and, besides, there is no place for extra children to go. Thus, in the remote farming village —the first described in *Earthbound China* —a well-to-do family is reduced to nothing in a couple of generations, while some individuals—by getting money out in the world, or by other means not too clearly understood—now and then buy up land from those who have too little, and start the cycle over again. In this case, there is turn-over of holdings among local residents, combined with growth of an unbelievably miserable class of farm laborers.

In the village which supplements agriculture with a paper-making industry (which uses an agricultural product, bamboo) those who thus add to their income have money to buy more land, and do so. They are becoming the owners of an expanding, surrounding territory whose limits seem determined by the distance at which —given poor means of travel—they can supervise their holdings and collect rent in kind or money from them. There is no other outlet for their money, as the industry already uses all the bamboo that can be produced in the little bit of land suited to it. Those from whom they buy the land become tenants or laborers.

In the third village the demands of a large town make agriculture more varied and profitable; but it also requires more capital, and it is the business people of the town who have the capital. More and more of the land falls into the hands of absentee owners, the peasants becoming landless laborers on the land they once owned. At each turn of generations, and consequent division of land, more and more must sell their minuscule holdings to the outsiders. The landless laborers are no less miserable than in the first community, where farming is less profitable.

Each of these three systems of farming and living, of metabolism of land and people, is described in detail. But the detail is carefully marshalled to show how one part fits into another. The description and analysis are good examples of what is called functional anthropology by Malinowski and Radcliffe-Brown. The method is doubtless easier of application to the relatively self-contained communities of China than to North American communities bound by myriad ties to one another and to town and city. But I believe that, even in this country, there is much to be gained by looking at rural communities

as entities and trying to see the interlocking of birthrates, techniques of farming, economic factors, our familia and legal institutions of mutual aid, inheritance and division of land, and what have you. It might give us some kinds of knowledge not to be had from specialized studies of large samples of this and that taken at random.

The authors offer these three studies as the kind of evidence which will become more and more pertinent and necessary for those who have to make the policies by which China will become industrialized enough to take care of that very large part of her population which cannot live from farming alone. Their chief point about such policy is that it should take account of the fact that the traditional industry in China is diffused among the villages and there supplements the subsistence gained from the land. They hope that China will maintain this feature in the new era, and so avoid the dislocations which followed upon the industrial revolution in the west.

EVERETT C. HUGHES
The University of Chicago.

If the Prospect Pleases: the West the Guidebooks Never Mention. By Ladd Haystead. Norman, Oklahoma; University of Oklahoma Press, 1945. pp. 208. $2.50.

The reader will find this little volume an interesting, fairly comprehensive view of the West as it is. It is not profound, and much of the material is not new, but the style and organization make it entertaining as well as enlightening reading.

The author first defines what he means by the West, which roughly includes the area west of the ninety-eighth meridian. He insists that the West of the pulp writers is completely gone and that boosters for the West must re-examine their position. Haystead feels they must stop looking for that wealthy easterner with out-of-state capital, and dig in for the "hard and onerous work of lifting each community by its bootstraps." Since the area Haystead labels "the West" covers most of the seventeen western states with varying conditions from the arid-agriculture, sparsely-settled sections to the humid Pacific coast industrial areas, this admonition might mean almost anything. It should not be taken to mean that tourist trade is not and should not be a significant part of the economy of the West. It not only is, but should be and undoubtedly will be. In some states, tourist business ranks second or third in economic importance among enterprises, and no one has yet been able to prove that a dollar spent by a tourist in the corner grocery store or gasoline station is not as good as the dollar spent by the local miner or farmer.

After explaining where the West begins and why, the author describes the western cattle industry under the chapter heading, "Git Along, Git Along!" He points out that while the beloved cowboy is gone, the cow business is now a well-managed enterprise, and will continue to be of major significance in the western states. In Chapter three, "If it Rains," Haystead indicates that he sees no very great opportunities in western agriculture for would-be settlers, on the grounds that a better marketing situation is needed to stabilize existing production and freight rate structure will have to be changed to make serving of eastern markets more attractive. Important though it is, the freight rate structure which discriminates against the raw-material-producing West is not what may be called a strategic or limiting factor in determining the success of western agriculture or mining enterprises. After sixteen years of living in the Northern Plains, this reviewer feels that under usual weather conditions, the new techniques and improved operating procedures that have been developed in the past decade or so for the semi-arid conditions characteristic of the region, including summer-fallow and strip farming, give western farmers competitive superiority or equality in many agricultural products with operators in the Middle West or East. As a matter of fact, western agriculture financially and technically is probably in a better position to withstand the impact of war readjustments than agriculture in many other parts of the nation, particularly in the South and East.

The author describes the lumber business of the West under the caption, "Donkeymen and High Riggers." This reviewer feels that the author is entirely too opti-

mistic about the abundant supply of western timber, and that there is little need, at least in our time, to worry about markets for the annual production of lumber that we may have. Under "Gushers, Dusters, and Pay Dirt," Haystead analyzes the tremendous mineral resources of the West and predicts that through additional sober "doers" like Henry Kaiser, industrial development will occur that will utilize the important minerals on a profitable, continuing basis. Discriminatory freight rates are discussed under the chapter, "Add Ten Cents West of the Rockies," and the author correctly presents the serious difficulties that prevent quick and adequate action in freight rate adjustment. Existing unfavorable freight rate differentials are an important factor delaying industrial development in the western states.

In spite of numerous "ifs," the author is optimistic about the future development of the West. This reviewer, although undoubtedly prejudiced by his years in the West, believes this optimism is justified and will be verified in the next two decades. However, Haystead points out that failing a Missouri River project of over-all, coordinated development, the eastern slope area will not change much from its present status. On the other side of the mountains, "roaring" west coast and "roaring" Pacific trade are in the cards, but it may take ten or twenty or thirty years to bloom. For the immediate future, Haystead places hope for development and expansion on the service trades and offers several good reasons for his stand.

Whether or not the prospect of the West pleases you will depend a good deal upon what you are looking for and from whence you are looking. In any case, this little book will give you an evening's worth of thought-provoking reading.

R. R. RENNE

Montana State College.

Government and the Mortgage Debtor (1929 to 1939). By Robert H. Skilton. Philadelphia: University of Pennsylvania, 1944. pp. 232.

Government and the Mortgage Debtor is a published doctor's dissertation in political science; and because it has not been issued as an ordinary book would be, it probably will fail to get the notice it deserves. It should, however, be called to the attention of economists generally and of urban and rural land economists particularly, for it is a careful and thorough piece of work.

The report includes a history of mortgage law and the growth of the mortgage as a financial device as well as an analysis of the real estate collapse in the early 1930's, the spread of the moratoria movement, the use of anti-deficiency judgment laws, and the development of federal relief measures for farm and home owners. In his closing chapter, Mr. Skilton offers some interesting reflective comments based on his analysis, to wit: "Although the policy of promoting homesteads has been emphasized vocally by legislatures during the entire period of the nation's history, active legislative manifestation of this policy has been a case of too little and too late." And: "Government cannot escape from the mortgage problem merely by refusing to deal with it in good times."

Urban and rural land economists who obtain a copy of this dissertation will find it full of useful legal, financial, and historical information pertaining to the mortgage problem; and they will also appreciate the careful analytical work that the author has put into it.

L. A. SALTER, JR.

University of Wisconsin.

Demobilization of Wartime Economic Controls. By John M. Clark. New York: McGraw-Hill, 1944. pp. 212.

This study analyzes the underlying principles and forces involved in federal controls over the economic system during the war period, the initial postwar reconversion and the long period of reconstruction which must ensue before there can be a stabilized economic situation, either nationally or internationally.

The book reserves careful study by everyone working on the problems of the postwar period. Five chapters deserve especial mention. Chapter three, "How Not to Re-

convert," summarizes the mistakes made at the end of the first world war and the serious blunders which will be made if the government yields to the pressures of interest-groups on such matters as immediate removal of government controls, contract terminations, tax reduction policies and handling of the labor situation.

Chapters seven to nine analyze the problems of the initial postwar reconversion and attempt to forecast the economic situations and trends which will characterize the first few years after the end of the Pacific war. They emphasize the importance of continuing government controls over wages, prices, and supplies of materials and of applying intelligent policies to the liquidation of surpluses of various types.

Chapter ten discusses "Controls" in a longer perspective, and attempts to suggest some of the necessary relations between government and business in the task of achieving maximum employment and the attainable degree of economic stabilization. Clark states that deficit spending may be necessary for some years to tide the country over a period of under-employment, but that "it is necessary to find some stimulus that will not depend on deficit spending" (p. 201) in order to achieve a sound and prosperous economy in "the long pull."

The basic approach of the book is summarized by some of Professor Clark's statements: "Government and business have not seen eye to eye; yet their most important interests are the same. To both, the maintenance of a high level of employment is a paramount concern out-weighing minor matters. Since this is a national problem, the interest of business lies in promoting effective remedies on a nationwide scale." "To that end it must gain an understanding of the problem as a national economic problem, which is a very different kind of understanding from the kind a business man customarily gets of problems affecting the interest of his single business enterprise." "In the past, the business man has tried to protect his individual business. Today, he is not effectively safeguarding his individual business unless he is also working effectively to keep the system of which it is a part in good working order. This means keeping it in a state of evolutionary development, not of changeless 'normalcy.' The primary requisite is an adequate national employment program which relies on private and voluntary activity to do most of the employing, but does not gamble everything on the slim chance that cyclical fluctuations will be mild and that private enterprise unaided, can do everything that needs to be done to maintain a long-run general level of employment." (pp. 201-202)

DON D. LESCOHIER
University of Wisconsin.

Pleasant Valley. By Louis Bromfield. New York: Harper Bros., 1945. $3.00.

At a recent Book and Author Luncheon, Mr. Bromfield declared his fascination with the "drama of actual events" and his decision that "for the time being, I have given up fiction writing for farming and economics." That is, of course, his privilege; but it might well be that the success of *Pleasant Valley* is founded upon his reputation as a fiction writer rather than as an economist or farmer. The drama of actual events produced in 1943-45 one-third more food instead of the famine he predicted for this country early in the war. His farming experiences and economic insights recorded in his book are no match for his artistic talent as a fiction writer and keen observer of man's moods and emotions.

The success of *Pleasant Valley*, among the top ten in the Best Sellers' list of the *New York Times Book Review* for several months, is perhaps hard to understand. The love of the land is preached with solemn hollowness rather than conveyed with the stirring intimacy of a Rawlings or Hamsun or Giono. The discussion of soil erosion and means of soil conservation is unimaginative and cursory, with a misplaced crusading fervor. The few references to economic and social problems are naively biased in favor of laissez-faire and the proud independence of successful business men. But the portraits of individual men and beasts are charming, refreshing, and make the book worth reading.

The story of the three Bromfield farms in *Pleasant Valley* is told in eight of the seventeen chapters. The remaining chapters are either delightful short stories, or labored

essays on the sanctity of the soil and the need for conserving it.

The short stories are little masterpieces of writing, like the legend of Johnny Appleseed, the frontier saint who gave settlers warning of Indian raids and was loved by men and beast alike; the idyll of Walter Oakes in "My Ninety Acres" who transferred his love for his wife, after her untimely death, to the soils and crops and animals of his farm; and the tale, "Of Boxers, a Mongoose, Some Goats and Sheep, a Bull and a Duck," which makes you chuckle with delight and admire the artistry of Bromfield as a writer.

The soil conservation essays, like "The World Within the Earth" or "Recapitulation," strangely lack the brilliance of style and vision that characterizes the short stories. A whole chapter is devoted to Ed Faulkner's *Plowman's Folly;* but the sins which the plow has perpetrated on our soils are not convincingly portrayed.

The eight chapters dealing with the description of three rundown farms and their rehabilitation would make rather dull reading, were it not for the interspersing of anecdotes and short stories. Even city people who never have seen a farm except through the car window could be interested in learning more about the technical problems in soil conservation than what they find here. Farm management and economic problems are hardly touched at all.

Except for the State Extension Service, government programs in agriculture are summarily dismissed as superficial or bad —especially those labeled as "New Deal." Henry Wallace is blamed for killing little pigs; but he is given no credit for launching the most dramatic and far-flung conservation campaign a country has ever known. The disappearance of the family-size farm is stated as a most regrettable fact, without any evidence that it actually is on the wane —which evidence is indeed hard to find. There are numerous statements which could be picked out for their inaccuracy or misinterpretation of facts.

A well-known and widely travelled author becomes a gentleman-farmer and writes a book — or rather half a book — about his recent farming hobby. The other half is good straight-forward literature, a testimony to the mastership of the author as a fiction writer. Let us hope that he soon returns whole-heartedly to his true calling.

RAINER SCHICKELE

Washington, D. C.

The Farmer's Last Frontier. By Fred A. Shannon. New York: Farrar and Rinehart, 1945. $5.00.

This volume is the first to be published of a projected series of nine entitled *The Economic History of the United States,* of which the author is one of the board of Editors. It is an admirable contribution to agricultural history, of which the essays on soil in its relation to farming, on the public land policy, and on agrarian politics are to be particularly commended for their vigorous presentation of the latest researches of the author and other authorities in those fields. The book is remarkable for its painstaking exactitude in scholarly methodology, but before one becomes annoyed with its excesses—such as the citation of authors' middle names, thus: Fred A[lbert] Shannon—one is overjoyed to find that the scholarship is the secure basis for a bold civic judgment that refutes the notion that intellectuals must dwell in ivory towers. The identification of the capitalist exploiters of the South as the exploiters of the masses in the North (p. 100) is typical of Professor Shannon's responsibility as a citizen; such observations should assist by a little in clearing the muddled waters of sectional feeling. The parenthetical remark on convict labor on page 104, "and not a pretty sight either," also may be cited as an example of a professor willing to admit that even he can afford social standards.

The liberal attitude which illuminates the book is acknowledged in the opening line: "The American farmer has rarely been prosperous . . . " and it has led Professor Shannon to consider in every part of his work the interests of the whole rural population. As a result the work creates the same emotions of mild despair that are found in so many of the novelists who have written on the rural scene since Hamlin Garland. The oppressors of the people are identified as capitalist land speculators and

engrossers, railroad builders, and market operators, and their activities are bitterly and thoroughly exposed. The confused and inconsistent muddle of land policy is traced to the machination of a financially controlled Congress; and the conclusions of Gates are upheld. Professor Shannon's penetrating awareness of these factors has resulted in a brilliant summary of the work of Hicks and others on agrarian politics that in itself is a contribution.

It is perhaps this social sympathy in combination with his evident love of the prairies and plains that has led Professor Shannon to overbalance his work in the direction prescribed by the Frontier enthusiasts. It is true that the West is given a greatly disproportionate space, and although he argues that the frontier movements "had their influence on agriculture, and on the whole economy, throughout the nation" (p. viii) he doesn't make too clear what the influence was, except in the competition which destroyed eastern grain and beef cattle interests; he specifically rejects the notion that the frontier lands afforded a beneficient economic opportunity for urban and rural workers. Although one rejoices in the vigor and vivacity of his picture of life on the frontier, it is disappointing to find that such a hope of the future as dairying is dismissed with seven pages of faint comprehension. The basis of the dairy revolution was established by 1900, but even the broad utility of Babcock's ingenious and versatile contrivance, the milk-fat test, is obscured by its appellation of "cream tester." The result is another influential book (one which is bound to occupy a determining position in the area of social judgment) which ignores the flow of culture from the East. It cannot be said, however, that historians living in the midst of the dairy revolution have done much to assist Professor Shannon in the labor of completing the story.

As a corollary of the above criticism, it may be mentioned that his interests cause him to ignore the material successes which many won in farming during this period. The physical characteristics of the book are a credit to the publishers.

W. H. GLOVER
University of Wisconsin.